

10/804,629

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	636	(556/1).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 13:10
L3	450	(556/20).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 13:30
L4	491	(556/30).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 13:51
L5	350	(556/174).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 14:00
L6	291	(556/176).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 14:09
L7	471	(556/182).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 14:34
L8	349	(117/68).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 14:37
L9	97	(117/70).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 14:42
L10	648	(117/104).CCLS.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2006/06/22 14:42

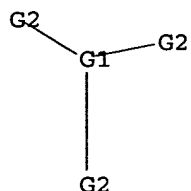
10/804,629

(FILE 'HOME' ENTERED AT 15:47:30 ON 22 JUN 2006)

FILE 'REGISTRY' ENTERED AT 15:48:08 ON 22 JUN 2006

L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR



G1 Al,Ga,In

G2 S,P,As,Sb,Se,Te

Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 15:48:31 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 3367 TO ITERATE

59.4% PROCESSED 2000 ITERATIONS - 4 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 63860 TO 70820
PROJECTED ANSWERS: 4 TO 289

L2 4 SEA SSS SAM L1

=> s l1 full
FULL SEARCH INITIATED 15:48:35 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 67154 TO ITERATE

100.0% PROCESSED 67154 ITERATIONS 302 ANSWERS
SEARCH TIME: 00.00.01

L3 302 SEA SSS FUL L1

=> fil caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	166.94	167.15

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=> s 13

L4 128 L3

=> s 14 and cyclopentadienyl

29924 CYCLOPENTADIENYL

L5 3 L4 AND CYCLOPENTADIENYL

==> d 1-3 bib abs

L5 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:776401 CAPLUS

DN 123:216870

TI Synthesis and Characterization of Group 13 and 15 Selenolates and
Tellurolates and the x-ray Crystal Structures of $\text{Ga}[\text{TeSi}(\text{SiMe}_3)_3]_3$,
 $\text{In}[\text{SeC}(\text{SiMe}_3)_3]_3$, $\{\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3\}_2(\mu\text{-DMPE})$, and $\text{P}[\text{SeSi}(\text{SiMe}_3)_3]_3$

AU Wuller, Stephen P.; Seligson, Allen L.; Mitchell, Gregory P.; Arnold, John
CS Department of Chemistry, University of California, Berkeley, CA, 94720,
USA

SO Inorganic Chemistry (1995), 34(19), 4854-61

CODEN: INOCAJ; ISSN: 0020-1669

PB American Chemical Society

DT Journal

LA English

AB A broad range of chalcogenolate complexes of Group 13 and 15 elements were isolated and studied. Metathesis of AlEt_2Cl with $(\text{THF})\text{LiSeSi}(\text{SiMe}_3)_3$ gave $(\text{THF})\text{AlEt}_2[\text{SeSi}(\text{SiMe}_3)_3]$ in good yield. Chalcogenolysis of $\text{Al}[\text{N}(\text{SiMe}_3)_2]_3$ with 3 equiv of $\text{HESi}(\text{SiMe}_3)_3$ (E = Se, Te) afforded $\text{Al}[\text{ESi}(\text{SiMe}_3)_3]_3$ (E = Se, Te). Treatment of GaCl_3 with 3 equiv of $(\text{THF})_2\text{LiTeSi}(\text{SiMe}_3)_3$ produced the homoleptic species $\text{Ga}[\text{TeSi}(\text{SiMe}_3)_3]_3$; likewise, addition of 3 equiv of $(\text{DME})\text{LiSeC}(\text{SiMe}_3)_3$ to InCl_3 yielded $\text{In}[\text{SeC}(\text{SiMe}_3)_3]_3$. Reaction of InCl_3 with 3 equiv of $(\text{THF})_2\text{LiSeSi}(\text{SiMe}_3)_3$ produced $(\text{THF})\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3$ in low yield. Homoleptic chalcogenolates, $\text{In}[\text{ESi}(\text{SiMe}_3)_3]_3$ (E = Se, Te) were prepared by chalcogenolysis of InCp_3 (Cp = $\eta^5\text{-C}_5\text{H}_5$). Addition of THF, pyridine, or TMEDA (N,N,N',N'-tetramethylethylenediamine) to $\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3$ gave 1:1 adducts, $(\text{L})\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3$ (L = THF, pyridine, TMEDA). Addition of DMPE (1,2-bis(dimethylphosphino)ethane) to $\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3$ produced a 1:1 complex $\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3(\text{DMPE})$ that was characterized in solution by NMR spectroscopy; attempts to isolate the complex yielded instead the crystalline 2:1 $\{\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3\}_2(\mu\text{-DMPE})$, whose x-ray structure was determined. Indium(I) complexes $\text{InESi}(\text{SiMe}_3)_3$ (E = Se, Te) were isolated from either the metathesis of InCl with $(\text{THF})_2\text{LiESi}(\text{SiMe}_3)_3$ or chalcogenolysis with InCp . Likewise, chalcogenolysis with TlCp produced $\text{TlESi}(\text{SiMe}_3)_3$ (E = Se, Te). Reaction of PCl_3 with $(\text{THF})_2\text{LiSeSi}(\text{SiMe}_3)_3$ produced $\text{P}[\text{SeSi}(\text{SiMe}_3)_3]_3$ in good yield. The As derivative $\text{As}[\text{SeSi}(\text{SiMe}_3)_3]_3$ was isolated from the reaction of $\text{As}(\text{NMe}_2)_3$ and 3 equiv of selenol. Similarly, the Sb and Bi complexes $\text{M}[\text{ESi}(\text{SiMe}_3)_3]_3$ (M = Sb, E = Se, Te; M = Bi, E = Se, Te) were prepared in good yields by chalcogenolysis with $\text{Sb}(\text{NMe}_2)_3$ or $\text{Bi}[\text{N}(\text{SiMe}_3)_2]_3$. Crystallog. data are as follows. $\text{Ga}[\text{TeSi}(\text{SiMe}_3)_3]_3$: monoclinic, space group $\text{P}2_1/\text{c}$, Z = 4, a 24.235(4), b 13.808(3), c 18.689(4) Å, β 106.424(16)°, R = 0.0926, Rw = 0.0731. $\text{In}[\text{SeC}(\text{SiMe}_3)_3]_3$: triclinic, space group $\text{P}.\text{hivin}.1$, Z = 2, a 13.772(4), b 13.778(4), c 16.026(4) Å, α 74.75(2), β 75.27(2), γ 62.12(2)°, R = 0.0424, Rw = 0.0476. $\{\text{In}[\text{SeSi}(\text{SiMe}_3)_3]_3\}_2(\mu\text{-DMPE})$: triclinic, space group $\text{P}.\text{hivin}.1$, Z = 2, a 13.655(3), b 13.8323(20), c 18.442(3) Å, α 97.874(13), β 104.066(16), γ 113.708(15)°, R = 0.0323, Rw = 0.0332. $\text{P}[\text{SeSi}(\text{SiMe}_3)_3]_3$: monoclinic, space group $\text{P}2_1/\text{c}$, Z = 6, a 22.706(4), b 13.959(5), c 17.619(3) Å, β 93.851(14)°, R = 0.0554, Rw = 0.0463.

L5 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1991:177123 CAPLUS
 DN 114:177123
 TI Preparation and structure of tris[2,4,6-tris(trifluoromethyl)thiophenolato
 indium(III) etherate
 AU Bertel, N.; Noltemeyer, M.; Roesky, H. W.
 CS Inst. Anorg. Chem., Univ. Goettingen, Goettingen, D-3400, Germany
 SO Zeitschrift fuer Anorganische und Allgemeine Chemie (1990), 588, 102-8
 CODEN: ZAACAB; ISSN: 0044-2313
 DT Journal
 LA German
 AB Reaction of NaL (HL = 2,4,6-tris(trifluoromethyl)thiophenol) and InCl₃ in
 the molar ratio of 1:3 in Et₂O forms InL₃.Et₂O (I) in 92% yield. I was
 also obtained by reaction of CpIn (Cp = **cyclopentadienyl**) and
 C₆H₂(CF₃)₃SH. The structure of I is discussed. I is triclinic, space
 group P1, a 1334.1(6), b 1256.2(7), c 1403.0 (9) Å, α 105.68(4),
 β 101.37(4), γ 115.64 (4)°, Z = 2, dc = 1.82 g cm⁻³, R =
 0.047, Rw = 0.054.

L5 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1976:428020 CAPLUS
 DN 85:28020
 TI Coordination compounds of indium. Part XXXI. Further studies of anionic
 complexes of indium(I)
 AU Habeeb, Jacob J.; Tuck, Dennis G.
 CS Dep. Chem., Univ. Windsor, Windsor, ON, Can.
 SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry
 (1972-1999) (1976), (10), 866-9
 CODEN: JCDTBI; ISSN: 0300-9246
 DT Journal
 LA English
 AB (C₅H₅)In (C₅H₅ = **cyclopentadienyl**) with equimolar quantities of
 HX and Et₄NX (X = Cl, Br, I) in organic media gave Et₄N[InX₂] (I) which were
 shown to contain bent monomeric anions by vibrational spectroscopy.
 (C₅H₅)In with [Ph₂MePCH₂]₂I₂ gave [Ph₂MePCH₂]₂[InI₃] (II). [InI₂]⁻ and
 [InI₃]₂⁻ salts were also prepared by electrochem. oxidation of In in I⁻ solns.
 Metathetical reactions of I gave Et₄N[In(X₁)₂] (X₁ = NCS, NCO) and of II
 gave [Ph₂MePCH₂]₂[In(NCS)₃] which may contain bridging ligands.

=> s l3/prep
 128 L3
 3486134 PREP/RL
 L6 61 L3/PREP
 (L3 (L) PREP/RL)

=> d 1-61 bib abs

L6 ANSWER 1 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:1208239 CAPLUS
 DN 144:120170
 TI Substituent Effects on Indium-Phosphorus Bonding in (4-
 RC₆H₄S)₃In-PR'₃ Adducts (R = H, Me, F; R' = Et, Cy, Ph): A
 Spectroscopic, Structural, and Thermal Decomposition Study
 AU Briand, Glen G.; Davidson, Reagan J.; Decken, Andreas
 CS Department of Chemistry, Mount Allison University, Sackville, NB, E4L 1G8,
 Can.
 SO Inorganic Chemistry (2005), 44(26), 9914-9920
 CODEN: INOCAJ; ISSN: 0020-1669
 PB American Chemical Society
 DT Journal
 LA English
 AB The tris(arylthiolate)indium(III) complexes (4-RC₆H₄S)₃In [R = H (5), Me
 (6), F (7)] were prepared from the 2:3 reaction of elemental In and the
 corresponding aryl disulfide in MeOH. Reaction of 5-7 with 2 equiv of the
 appropriate triorganylphosphine in benzene or toluene gave the
 In-phosphine adduct series (4-RC₆H₄S)₃In-PR'₃ [R = H, R' = Et (5a),
 Cy (5b), Ph (5c); R = Me, R' = Et (6a), Cy (6b), Ph (6c); R = F, R' = Et
 (7a), Cy (7b), Ph (7c)]. These compds. were characterized via elemental

anal., FTIR, FT-Raman, solution ^1H , $^{13}\text{C}\{^1\text{H}\}$, $^{31}\text{P}\{^1\text{H}\}$, and ^{19}F (7a-c) NMR spectroscopy, and x-ray crystallog. (5c, 6a, 6c, and 7a). NMR spectra show retention of the In-P bond in benzene- d_6 solution, with phosphine $^{31}\text{P}\{^1\text{H}\}$ signals shifted downfield compared to the uncoordinated ligand. The x-ray structures show monomeric 1:1 adduct complexes in all cases. The In-P bond distance [2.5863(5)-2.6493(12) Å] is influenced significantly by the phosphine substituents but is unaffected by the substituted phenylthiolate ligand. Relatively low m.ps. (88-130°) are observed for all adducts, while high-temperature thermal decomposition is observed for the In thiolate reactants 5-7. DSC/TGA and EI-MS data show a two-step thermal decomposition process, involving an initial loss of the phosphine moiety followed by loss of thiolate ligand.

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:293793 CAPLUS
DN 143:277561
TI Synthesis and Characterization of Lewis Base Stabilized Gallium-Tellurium Complexes
AU Selvakumar, D.; Singh, Rajendra; Nasim, M.; Mathur, G.
CS Defence Materials & Stores Res. and Dev. Establ., DMSRDE, Kanpur, India
SO Phosphorus, Sulfur and Silicon and the Related Elements (2005), 180(3-4), 1011-1017
CODEN: PSSLEC; ISSN: 1042-6507
PB Taylor & Francis, Inc.
DT Journal
LA English
OS CASREACT 143:277561
AB The synthesis and characterization of some Lewis base (LB) stabilized Ga-telluride complexes is reported. Ga tellurolate complexes [LB]·[Ga(TePh) $_3$] $_x$, [$x = 1$, LB = 4-dimethylaminopyridine; $x = 2$, LB = 4,4'-methylene bis(N,N'-dimethylaniline)] were prepared by reacting the corresponding Lewis base adduct of Ga(III) iodide and phenyllithium tellurolate. The complexes were characterized by elemental analyses, ICP-MS, multinuclear NMR, and thermal and mass spectrometry. Such complexes may be potential single-mol. precursors for III-VI electronic materials.

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:562196 CAPLUS
DN 139:402945
TI Synthetic and structural studies on aluminium thiolate complexes
AU Carmalt, Claire J.; Mileham, John D.; White, Andrew J. P.; Williams, David J.; Rushworth, Simon
CS Christopher Ingold Laboratories, Department of Chemistry, University College London, London, WC1H 0AJ, UK
SO Polyhedron (2003), 22(18), 2655-2660
CODEN: PLYHDE; ISSN: 0277-5387
PB Elsevier Science Ltd.
DT Journal
LA English
OS CASREACT 139:402945
AB The reaction between [AlH $_3$ (NMe $_2$ Et)] and 1 equiv of t-BuSH gave colorless crystals of [Al(S-t-Bu) $_3$ (NMe $_2$ Et)]. The reaction of [AlH $_3$ (NMe $_2$ Et)] and 1 equiv of 2,6-Me $_2$ C $_6$ H $_3$ SH afforded colorless crystals of [HNMe $_2$ Et][Al(SC $_6$ H $_3$ Me $_2$ -2,6) $_4$]. The related reaction of [AlH $_3$ (OEt $_2$)] (generated in situ from AlCl $_3$ and 3 equiv of LiAlH $_4$) and 2,6-Me $_2$ C $_6$ H $_3$ SH in di-Et ether gave [Al(SC $_6$ H $_3$ Me $_2$ -2,6) $_3$ (OEt $_2$)]. However, the ionic compound [Li(OEt $_2$) $_3$][Al(SC $_6$ H $_3$ Me $_2$ -2,6) $_4$] can be isolated from the reaction between [AlH $_3$ (OEt $_2$)] and 2,6-Me $_2$ C $_6$ H $_3$ SH, when incomplete reaction of AlCl $_3$ with LiAlH $_4$ occurs before the addition of the thiol. The x-ray crystal structures of all the compds. were determined

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:365416 CAPLUS
DN 139:94254
TI Novel Bimetallic Thiocarboxylate Compounds as Single-Source Precursors to
Binary and Ternary Metal Sulfide Materials
AU Deivaraj, Theivanayagam C.; Park, Jin-Ho; Afzaal, Mohammad; O'Brien, Paul;
Vittal, Jagadese J.
CS Department of Chemistry, National University of Singapore, Singapore,
117543, Singapore
SO Chemistry of Materials (2003), 15(12), 2383-2391
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English
OS CASREACT 139:94254
AB Binuclear [(Ph₃P)CuM(SC(O)Ph)₄] (M = Ga (1) or In (2)),
[(Ph₃P)₂AgGa(SC(O)Ph)₄] (3), [(Ph₃P)₂AgIn(SC(O)R)₄] (R = Me (4) or Ph (5))
were synthesized and characterized. The solid-state structures of compds.
1-3 were determined by x-ray crystallog. TG and pyrolysis studies revealed
that these compds. decompose to give the corresponding ternary metal sulfide
materials. However, using the aerosol-assisted CVD (AACVD) method, In₂S₃
thin films were obtained from 2 and AgIn₅S₈ thin films were obtained from
compds. 4 and 5.

RE.CNT 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:304459 CAPLUS
DN 139:110550
TI Trialkylammonium salts of [M(SC(O)R)₄] (M = Ga³⁺ and In³⁺) as precursors
for metal sulfide thin films
AU Deivaraj, Theivanayagam C.; Lin, Ming; Loh, Kian Ping; Yeadon, Mark;
Vittal, Jagadese J.
CS Department of Chemistry, National University of Singapore, Singapore,
117543, Singapore
SO Journal of Materials Chemistry (2003), 13(5), 1149-1155
CODEN: JMACEP; ISSN: 0959-9428
PB Royal Society of Chemistry
DT Journal
LA English
OS CASREACT 139:110550
AB Trialkylammonium salts of indium and gallium thiocarboxylates,
[Et₃NH][M(SC(O)Ph)₄]·H₂O (M = In, 1; Ga, 2), [Bu₃NH][In(SC(O)Ph)₄]
(3) and [R₃NH][In(SC(O)Me)₄] (R = Et, 4; Bu, 5), were synthesized and
characterized. The structure of 2 was determined by single crystal x-ray
diffraction and is isomorphous and isostructural with
[Et₃NH][In(SC(O)Ph)₄]·H₂O (1) reported earlier. Thermal properties
of 1-5 were studied. Compound 4 exhibits a phase transition which was
characterized by DSC. Thermogravimetric and pyrolysis expts. of 1, 3, 4
and 5 showed the formation of tetragonal β-In₂S₃, while 2 yielded
poorly crystalline monoclinic Ga₂S₃. Thin films of tetragonal In₂S₃ were
obtained on a Ni coated Si substrate by MOCVD expts. using 1. Under
similar conditions, 2 resulted in a film containing both cubic γ-Ga₂S₃
and hexagonal Ni_{0.96}S. When a Cu coated Si substrate was used 1 deposited
thin films of tetragonal CuInS₂, while 2 furnished a mixture of tetragonal
Cu_{1.96}S and tetragonal CuGaS₂ films. The composition of the thin films also
depends on the temperature employed during the growth process. The composition,
stoichiometry, phase anal. and surface morphol. of the thin films obtained
were unequivocally characterized using XRD, SEM, TEM, RBS, Selective Area
Electron Diffraction and XPS. Apparently the decomposed product(s) of 1 and
2 react with the substrate to form the metal sulfide thin films.

RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:139807 CAPLUS
DN 138:338220
TI Mono(borane)phosphides as Ligands to Lithium and Aluminum
AU Mueller, Gerhard; Brand, Joerg
CS Fachbereich Chemie, Universitaet Konstanz, Konstanz, 78464, Germany

SO Organometallics (2003), 22(7), 1463-1467
CODEN: ORGND7; ISSN: 0276-7333
PB American Chemical Society
DT Journal
LA English
OS CASREACT 138:338220
AB Preparation and structure of lithium and aluminum complexes with chiral and sym. mono-borane diorganophosphide anions is described. The complexation potential of mono(borane)diorganophosphides toward lithium and aluminum was explored in the complexes $[(\text{tmeda})\text{Li}]\{\text{P}(\text{BH}_3)\text{Me}_2\}$ (1), $[(\text{--})\text{-sparteine})\text{Li}]\{\text{P}^*(\text{BH}_3)(\text{Ph})\text{tBu}\}$ (2), $[(\text{tmeda})_2\text{Li}]+[\text{Al}\{\text{P}(\text{BH}_3)\text{Me}_2\}_4]^-$ (3), and $[(\text{mtbe})\text{Li}]+[\text{Al}\{\text{P}(\text{BH}_3)\text{Me}_2\}_4]^-$ (4) (tmeda = N,N,N',N'-tetramethylethylenediamine; mtbe = methyl-tert-Bu ether). In 1 there is competing Li-P and Li-H-B bonding, while in 2 Li-P coordination is absent due to steric hindrance. Compound 2 contains the enantiomerically pure P-chiral anion $[\text{P}^*(\text{BH}_3)(\text{Ph})\text{tBu}]^-$, which is a valuable building block for the synthesis of P-chirogenic phosphines. Crystallog. structures for 1-4 are reported. The complexes 3 and 4 are the first homoleptic tetraphosphorus aluminates to be structurally characterized.
RE.CNT 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:911743 CAPLUS
DN 138:178441
TI Lithium tetrakis(tri-tert-butoxysilanethiolato)gallate(III)
AU Baranowska, Katarzyna; Chojnacki, Jaroslaw; Wojnowski, Wieslaw; Wurster, Evelyn
CS Department of Chemistry, Technical University of Gdansk, Gdansk, 80952-PL, Pol.
SO Acta Crystallographica, Section E: Structure Reports Online (2002), E58(12), m728-m729
CODEN: ACSEBH; ISSN: 1600-5368
URL: <http://journals.iucr.org/e/issues/2002/12/00/ob6190/index.html>
PB International Union of Crystallography
DT Journal; (online computer file)
LA English
AB The title compound, was obtained as a byproduct of the reaction of a metastable GaBr solution with (tert-BuO)3SiSLi. Crystals of the compound are monoclinic, space group P21/n, with a 25.071(5), b 23.872(5), c 26.189(5) Å, β 113.16(3)°; Z = 4 (2 mols./Z), dc = 1.101; R = 0.043, Rw(F2) = 0.111 for 27,232 reflections. Each Li cation is coordinated by two O atoms from butoxy groups of the ligand.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:762955 CAPLUS
DN 138:172734
TI Metal Sulfide Synthesis by Self-Propagating Combustion of Sulfur-Containing Complexes
AU Tukhtaev, R. K.; Boldyrev, V. V.; Gavrilov, A. I.; Larionov, S. V.; Myachina, L. I.; Savel'eva, Z. A.
CS Siberian Division, Institute of Solid-State Chemistry and Mechanochemistry, Russian Academy of Sciences, Novosibirsk, 630128, Russia
SO Inorganic Materials (Translation of Neorganicheskie Materialy) (2002), 38(10), 985-991
CODEN: INOMAF; ISSN: 0020-1685
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB Coordination compds. of thiourea with cadmium(II), zinc(II), bismuth(III), and indium(III) nitrates were synthesized. The self-sustained combustion of these complexes, as well as that of thiosemicarbazide coordination compds. of nickel(II), cobalt(II), iron(II), copper(II), lead(II), and zinc(II) nitrates, was studied in an inert atmospheric All these compds. burn to yield metal sulfides. The particle size and morphol. of the product depend on the pressure at which the process is carried out. For cadmium(II) and zinc(II) sulfides, which are capable of subliming at the

combustion temps. of their precursors, these parameters can be varied over wide ranges.

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 9 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:463259 CAPLUS
DN 137:178910
TI Synthesis and Structures of Aluminum Alkanethiolate Complexes
AU Daniel, Sherrika; Hoffman, David M.
CS Department of Chemistry and the Materials Research Science and Engineering Center, University of Houston, Houston, TX, 77204-5003, USA
SO Inorganic Chemistry (2002), 41(15), 3843-3849
CODEN: INOCAJ; ISSN: 0020-1669
PB American Chemical Society
DT Journal
LA English
OS CASREACT 137:178910
AB The homoleptic Al thiolate complex $[\text{Al}(\mu\text{-S-t-Bu})(\text{S-t-Bu})_2]_2$ was prepared by reacting AlBr_3 with NaS-t-Bu while the analogous 2-propanethiolate complex $[\text{Al}(\mu\text{-S-i-Pr})(\text{S-i-Pr})_2]_2$ was synthesized by reacting $\text{AlH}_3(\text{OEt}_2)$ with i-PrSH . In the solid state, the dimers have tetrahedral Al atoms and anti-Al($\mu\text{-SR}$) $_2$ Al four-member rings. The attempted synthesis of $[\text{Al}(\mu\text{-S-t-Bu})(\text{S-t-Bu})_2]_2$ by reacting $\text{Al}(\text{N-i-Pr}_2)_3$ with t-BuSH in THF solvent yielded the thermally stable THF adduct $\text{Al}(\text{S-t-Bu})_3(\text{THF})$. The same reaction in Et_2O solvent produced a mixture of $[\text{Al}(\mu\text{-S-t-Bu})(\text{S-t-Bu})_2]_2$ and $[\text{i-Pr}_2\text{NH}_2][\text{Al}(\text{S-t-Bu})_4]$. In the solid-state structure of the salt, $[\text{Al}(\text{S-t-Bu})_4]^-$ has a distorted tetrahedral geometry. Reactions of $[\text{Al}(\text{NMe}_2)_3]_2$ and $\text{AlH}_3(\text{NMe}_2\text{Et})$ with the alkanethiols yielded stable amine adducts $\text{Al}(\text{SR})_3(\text{R}'\text{NMe}_2)$ ($\text{R} = \text{i-Pr}$ or t-Bu ; $\text{R}' = \text{H}$ or Et). The ligand adducts $\text{Al}(\text{S-i-Pr})_3(\text{HNMe}_2)$ and $\text{Al}(\text{S-t-Bu})_3(\text{THF})$ have distorted trigonal pyramidal geometries in the solid state. Three of the new compds., $[\text{Al}(\mu\text{-S-i-Pr})(\text{S-i-Pr})_2]_2$ and $\text{Al}(\text{SR})_3(\text{HNMe}_2)$ ($\text{R} = \text{i-Pr}$ or t-Bu), are viable precursor candidates for the CVD of Al sulfide films because they are thermally stable, volatile liqs. at moderate temps.

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:536665 CAPLUS
DN 135:326568
TI Amine adducts of tert-butylthiolate gallium hydrides - synthetic and x-ray crystallographic studies
AU Miinea, L. A.; Hoffman, D. M.
CS Department of Chemistry, University of Houston, Houston, TX, 77204, USA
SO Polyhedron (2001), 20(18), 2425-2430
CODEN: PLYHDE; ISSN: 0277-5387
PB Elsevier Science Ltd.
DT Journal
LA English
OS CASREACT 135:326568
AB Amine adducts of tert-butylthiolate gallium hydrides were synthesized for possible use as precursors to gallium sulfide films. Reactions of GaH_3L ($\text{L} = \text{NMe}_3$ or quinuclidine) with 1 or 2 equiv of t-BuSH and $\text{GaH}_3\text{-xClx(quin)}$ with 1 or 2 equiv of LiS-t-Bu produced mixts. of products. The complexes $\text{GaH}(\text{S-t-Bu})_2(\text{NMe}_3)$ and $\text{GaH}_2(\text{S-t-Bu})(\text{quin})$ were isolated as crystalline solids from the product mixts. and both were characterized by x-ray crystallog. In the solid state, $\text{GaH}(\text{S-t-Bu})_2(\text{NMe}_3)$ is best described as having a trigonal pyramidal geometry. The complexes $\text{Ga}(\text{S-t-Bu})_3\text{L}$ ($\text{L} = \text{NMe}_3$ or quinuclidine) were synthesized from GaH_3L and a slight excess of t-BuSH .

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:30475 CAPLUS
DN 134:216456
TI Alkylthiolatoalanes and alkylthiolatohydridoaluminates
AU Knizek, Jorg; Noth, Heinrich; Schlegel, Andreas
CS Department of Chemistry, University of Munich, Munchen, 81377, Germany

SO European Journal of Inorganic Chemistry (2001), (1), 181-187
CODEN: EJICFO; ISSN: 1434-1948
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
OS CASREACT 134:216456
AB Reactions of thiols RSH (R = Et, iPr, Bu-t) with $\text{AlH}_3 \cdot \text{NMe}_3$ lead to $\text{RSAlH}_2 \cdot \text{NMe}_3$ or $(\text{RS})_2\text{AlH} \cdot \text{NMe}_3$ compds., depending on the stoichiometry. Similarly, the 1:1 reaction of LiAlH_4 with RSH (R = Et, iPr) in ether produces LiAlH_3SR , however, in the case of NaAlH_4 and iPrSH in THF, ligand exchange of $\text{NaAlH}_3(\text{SR})$ to NaAlH_4 , $\text{NaAlH}_2(\text{SR})_2$ and $\text{NaAlH}(\text{SR})_3$ occurs. A byproduct of the formation of $\text{LiAlH}(\text{SBut})_3$ (6), in ether is $[(\text{Et}_2\text{O})\text{LiAlH}(\text{SBut})_3 \cdot \text{LiSBut}]_2$ (7). Reaction of a 1:1 mixture of LiAlH_4 with $\text{AlH}_3 \cdot \text{NMe}_3$ and HSBut (1:1:5) leads to $\text{LiAlH}(\text{SBut})_3 \cdot \text{AlH}(\text{SBut})_2\text{NMe}_3$ (8). Compds. 5 $[(t\text{-BuS})_2\text{AlH}(\text{NMe}_3)]$, 7 and 8 were characterized by x-ray structure detns. All mols. contain tetracoordinated Al centers.

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:464485 CAPLUS
DN 133:296470
TI Syntheses and crystal structures of some lithium di- and tri-(thiolato)[tris(trimethylsilyl)methyl]aluminates
AU Chen, Wu-Yong; Eaborn, Colin; Gorrell, Ian B.; Hitchcock, Peter B.; Smith, J. David
CS Sch. Chem., Physics and Environmental Science, University of Sussex, Brighton, BN1 9QJ, UK
SO Dalton (2000), (14), 2313-2317
CODEN: DALTFG
PB Royal Society of Chemistry
DT Journal
LA English
AB The 1st organodi- and organotri-(thiolato)aluminates were prepared and structurally characterized. They were obtained by the reactions of $[\text{Li}(\text{THF})_2\{\text{AlH}_3[\text{C}(\text{SiMe}_3)_3]\}]_2$ (1) with disulfides R_2S_2 (R = Me, Et or Ph) or thiols RSH (R = Pri, But or Ph). The structure of the Me compound $[\text{Li}(\text{THF})_2\{\text{Al}[\text{C}(\text{SiMe}_3)_3](\text{SMe})_3\}]$ was determined by x-ray crystallog. and shown to comprise Li organotri(thiolato)aluminates each containing a folded four-membered LiS_2Al ring. NMR spectroscopy indicates that the Et, Pri and Ph derivs. have similar structures in solution. Treatment of compound 1 with a 3-fold excess of ButSH led to the replacement of only two of the available Al-H bonds and formation of $[\text{Li}(\text{THF})\{\text{AlH}[\text{C}(\text{SiMe}_3)_3](\text{SBut})_2\}]$, which contains an almost planar four-membered LiS_2Al ring. $[\text{Li}(\text{tmen})_2][\text{Al}\{\text{C}(\text{SiMe}_3)_3\}(\text{SR})_3]$ (R = But or Ph) were made by treatment of $[\text{Li}(\text{tmen})_2][\text{AlH}_3\{\text{C}(\text{SiMe}_3)_3\}]$ (tmen = N,N,N',N'-tetramethylethane-1,2-diamine) with RSH, and the But derivative crystallized in a lattice containing separated $[\text{Li}(\text{tmen})_2]$ cations and $[\text{Al}\{\text{C}(\text{SiMe}_3)_3\}(\text{SBut})_3]$ anions.

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:106088 CAPLUS
DN 132:273287
TI Phosphine and phosphido indium hydride complexes and their use in inorganic synthesis
AU Cole, Marcus L.; Hibbs, David E.; Jones, Cameron; Smithies, Neil A.
CS Department of Chemistry, University of Wales, Cardiff, Cardiff, CF10 3TB, UK
SO Dalton (2000), (4), 545-550
CODEN: DALTFG
PB Royal Society of Chemistry
DT Journal
LA English
AB Reaction of PR_3 , R = cyclohexyl (Cy), cyclopentyl (Cyp) or Ph, with $[\text{InH}_3(\text{NMe}_3)]$ affords the 1:1 In trihydride complexes, $[\text{InH}_3(\text{PR}_3)]$. The stabilities and spectroscopic properties of these complexes are described in terms of the phosphine ligands' steric bulk and nucleophilicity.

Reaction of two equivalent of PCy₃ with [InH₃(NMe₃)] yields [InH₃(PCy₃)₂] which was characterized by x-ray crystallog. The 1st phosphido-In hydride complex, [{InH₂(PCy₂)₃}], was prepared by a novel synthetic route which involves treatment of [InH₃(NMe₃)] with LiPCy₂. Its crystal structure shows it to exist as a cyclic trimer in the solid state. The complex, [InH₃(PCy₃)] was used to prepare a range of monomeric In chalcogenolato complexes, [In(EPh)₃(PCy₃)], E = S, Se or Te, all of which were structurally characterized.

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 14 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:183121 CAPLUS
DN 130:305518
TI Synthesis and Structures of Gallium Alkylthiolate Compounds
AU Suh, Seigi; Hardesty, Jon H.; Albright, Thomas A.; Hoffman, David M.
CS Department of Chemistry and the Materials Research Science and Engineering Center, University of Houston, Houston, TX, 77204, USA
SO Inorganic Chemistry (1999), 38(7), 1627-1633
CODEN: INOCAJ; ISSN: 0020-1669
PB American Chemical Society
DT Journal
LA English
AB Ga alkylthiolate complexes were prepared from Ga amide complexes and thiols. [Ga(NMe₂)₃]₂ reacts with excess t-BuSH to give Ga(S-t-Bu)₃(HNMe₂). In contrast, the bulky amide complex Ga(N-i-Pr)₂₃ reacts with t-BuSH to give the homoleptic thiolate dimer [Ga(S-t-Bu)₃]₂. The analogous reaction between Ga(N-i-Pr)₂₃ and i-PrSH produces [i-Pr₂NH₂][Ga(S-i-Pr)₄], which on heating under vacuum loses amine and thiol to give the dimer [Ga(S-i-Pr)₃]₂. Reactions of [i-Pr₂NH₂][Ga(S-i-Pr)₄] and [Ga(S-t-Bu)₃]₂ with excess pyridine give the adducts Ga(SR)₃(py) (R = i-Pr or t-Bu). X-ray crystallog. studies show that the dimers have two bridging thiolate ligands. The Ga(μ-SR)₂Ga four-membered ring in [Ga(S-i-Pr)₃]₂ has a planar anti geometry while the ring in [Ga(S-t-Bu)₃]₂ has a butterfly syn configuration. In the solid state, Ga(S-t-Bu)₃(HNMe₂) and [i-Pr₂NH₂][Ga(S-i-Pr)₄] have trigonal-pyramidal and distorted tetrahedral geometries, resp. The [Ga(SR)₃]₂ compds. exhibit solution fluxional behavior consistent with two sep. processes, bridge-terminal thiolate exchange and effective inversion at the bridging S atoms. Ab initio MO calcns. on [Ga(SH)₂(μ-SH)]₂ at the MP4(SDQ) level predict activation energies for the two processes of 17.6 and 11.9 kcal/mol, resp. Crystal data are as follows. Ga(S-t-Bu)₃(HNMe₂), C₁₄H₃₄GaNS₃ at 223 K: P2₁/n (monoclinic), a 9.6373(5), b 12.7183(7), c 16.9708(9) Å, β 91.9810(10)°, and Z = 4. [i-Pr₂NH₂][Ga(S-i-Pr)₄], C₁₈H₄₄GaNS₄ at 223 K: space group P2₁/n (monoclinic), a 12.0179(6), b 15.4813(8), c 14.3875(8) Å, β 93.801(1)°, and Z = 4. [Ga(S-i-Pr)₃]₂, C₁₈H₄₂Ga₂S₆ at 223 K: P.hivin.1 (triclinic), a 8.6813(8), b 9.2969(8), c 11.1804(10) Å, α 107.385(2), β 95.987(1), γ 117.285(1)°, and Z = 1. [Ga(S-t-Bu)₃]₂, C₂₄H₅₄Ga₂S₆ at 223 K: space group C2/c (monoclinic), a 10.0630(10), b 17.698(2), c 19.836(2) Å, β 98.500(10)°, and Z = 4.

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 15 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:636318 CAPLUS
DN 129:339072
TI Indium Tris(alkylthiolate) Compounds
AU Suh, Seigi; Hoffman, David M.
CS Department of Chemistry and Materials Research Science and Engineering Center, University of Houston, Houston, TX, 77204, USA
SO Inorganic Chemistry (1998), 37(22), 5823-5826
CODEN: INOCAJ; ISSN: 0020-1669
PB American Chemical Society
DT Journal
LA English
AB In[N(Bu-t)(SiMe₃)₃] reacts with RSH to give In(SR)₃ (R = t-Bu, i-Pr). The tert-Bu derivative is formulated as the dimer [In(S-t-Bu)₂(μ-S-t-Bu)]₂ from NMR data, mol. weight determination, and its solubility. The limited solubility of the

isopropylthiolate complex suggests that it is a polymer.

[In(SBu-t)₂(μ-SBu-t)]₂ and [In(SPr-i)₃]_n react with pyridine and p-dimethylaminopyridine, resp., to form In(SBu-t)₃(py) and In(SPr-i)₃(p-Me₂Npy)₂, which were characterized by x-ray crystallog. In(SBu-t)₃(py) is trigonal pyramidal, and In(SPr-i)₃(p-Me₂Npy)₂ is trigonal bipyramidal. In both structures the pyridine ligands occupy the apical positions. Crystal data are as follows: C₁₇H₃₂InNS₃ at 223 K: space group P2₁/c (monoclinic), a 10.1490(5), b 24.3811(13), c 18.8484(10) Å, β 104.8100(10)°, and Z = 8; C₂₃H₄₁N₄S₃In.CH₂Cl₂ at 223 K: space group P.hivin.1 (triclinic), a 10.620(1), b 11.568(1), c 14.892(2) Å, α 79.54(1), β 75.88(1), γ 66.08(1)°, and Z = 2.

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 16 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1998:475375 CAPLUS

DN 129:197119

TI Chalcogenides of aluminum(III) and gallium(III) derived from Lewis base adducts of alane and gallane

AU Grigsby, Warren J.; Raston, Colin L.; Tolhurst, Vicki-Anne; Skelton, Brian W.; White, Allan H.

CS Department of Chemistry, Monash University, Clayton, Melbourne, 3168, Australia

SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1998), (15), 2547-2556

CODEN: JCDTBI; ISSN: 0300-9246

PB Royal Society of Chemistry

DT Journal

LA English

AB Reductive cleavage of (ER)₂ by [GaH₃L], L = NMe₃ or P(C₆H₁₁)₃, afforded [Ga(TePh)₃(NMe₃)] (2), [Ga(SeEt)₃(NMe₃)] and [Ga(TePh)₃{P(C₆H₁₁)₃}] (3); the latter was also prepared by the reaction of [GaH₂Cl{P(C₆H₁₁)₃}] with LiTePh. They have slightly disordered tetrahedral metal centers, established in the solid for [Ga(TePh)₃(NMe₃)] and [Ga(TePh)₃{P(C₆H₁₁)₃}], in the structure of the aluminum analog, [Al(SePh)₃(NMe₃)] (1), which was also determined. Reaction of [GaH₂Cl{P(C₆H₁₁)₃}] with Li₂Se afforded dinuclear trans-[[GaCl(μ-Se){P(C₆H₁₁)₃}]₂] (7, minor product) which is centrosym. with distorted tetrahedral metal centers associated with a planar Ga₂Se₂ ring system. Treatment of trans-[[AlH(μ-Se)(NMe₃)]₂] with tmen (N,N,N',N'-tetramethylethane-1,2-diamine), or [[AlH₃(tmen)]_∞] with elemental selenium, afforded polymeric [[AlH(μ-Se)]₂(tmen)]_∞. Cleavage of (EPh)₂ by trans-[[AlH(μ-Se)(NMe₃)]₂] gave trans-[[Al(μ-Se)(EPh)(NMe₃)]₂] (E = S (4), Se (5) or Te), also as centrosym. dinuclear species with planar Al₂Se₂ ring systems. Reaction of trans-[[AlH(μ-Se)(NMe₃)]₂] with 2 equiv of NH(SiMe₃)₂ or 6-methyl-2-trimethylsilylaminopyridine gave the secondary amine metalated products trans-[[Al(μ-Se)[N(SiMe₃)₂](NMe₃)]₂] (6, structurally authenticated as a centrosym. dinuclear species) and [[Al(μ-Se)(NC₅H₃NSiMe₃-2-Me-6)]₂]. Complexes 1-7 were characterized by x-ray crystallog. (1: monoclinic, space group Cc, R = 0.064; 2: monoclinic, space group P2₁/c, R = 0.031; 3: monoclinic, space group P2₁/c, R = 0.061; 4: monoclinic, space group P2₁/c, R = 0.036; 5: 2PhMe: monoclinic, space group C2/m, R = 0.065; 6: triclinic, space group P.hivin.1, R = 0.042; 7: PhMe: triclinic, space group P.hivin.1, R = 0.059).

RE.CNT 68 THERE ARE 68 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 17 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1998:383330 CAPLUS

DN 129:136264

TI The syntheses and crystal structures of [PPh₄][In(SePh)₄] and [PPh₄][In(SePh)₃(SeH)]

AU Smith, Donna M.; Ibers, James A.

CS Department of Chemistry, Northwestern University, Evanston, IL, 60208-3113, USA

SO Polyhedron (1998), 17(11-12), 2105-2108

CODEN: PLYHDE; ISSN: 0277-5387

PB Elsevier Science Ltd.

DT Journal
LA English
AB The reaction of InCl₃ with NaSePh in EtOH followed by addition of PPh₄Cl affords Ph₄P⁺ tetra(benzeneselenolato)indium(III), [PPh₄][In(SePh)₄] (1). Reaction of the [In(SePh₄)]- reaction mixture with NaBH₄ and elemental S followed by the addition of PPh₄Cl yields Ph₄P⁺ tri(benzeneselenolato)(hydroselenido)indium(III), [PPh₄][In(SePh)₃(SeH)] (2). The structures of 1 and 2, was determined from single-crystal x-ray data, feature well-separated cations and anions with the In(III) centers of the anions tetrahedrally coordinated to four [SePh]- ligands or three [SePh]- ligands and one [SeH]- ligand, resp.

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:594854 CAPLUS
DN 127:270769

TI Chemical vapor deposition of metal sulfide films from metal thiocarboxylate complexes with monodentate or multidentate ligands
IN Hampden-Smith, Mark; Kunze, Klaus; Nyman, May
PA University of New Mexico, USA
SO PCT Int. Appl., 82 pp.
CODEN: PIXXD2

DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9732056	A1	19970904	WO 1997-US4123	19970227
	W: CA, FI, JP, KR				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5837320	A	19981117	US 1996-607390	19960227
PRAI	US 1996-607390	A	19960227		

AB In a method of depositing a metal sulfide film on a substrate, a solution containing at least one metal compound precursor comprising at least one thiocarboxylate ligand SECR, wherein E is selected from the group consisting of O and S and wherein R is selected from the group consisting of alkyl, aryl, substituted alkyl, substituted aryl, halogenated alkyl, and halogenated aryl was prepared. The substrate in a substrate chamber is heated to a reaction temperature by a heating means. The solution is evaporated to form vapors of the metal compound precursor using an aerosol generator. The vapors and the substrate heated to the reaction temperature are contacted. The reaction temperature is sufficient to decompose the metal compound precursor to form a metal sulfide film of at least one metal on the substrate.

L6 ANSWER 19 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:594673 CAPLUS
DN 127:249431

TI Liquid-phase routes to metal sulfide films from metal thiocarboxylate complexes with multidentate ligands
IN Hampden-Smith, Mark; Kunze, Klaus; Nyman, May
PA USA
SO PCT Int. Appl., 65 pp.
CODEN: PIXXD2

DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9731723	A1	19970904	WO 1997-US4145	19970227
	W: CA, FI, JP, KR				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
PRAI	US 1996-607363	A	19960227		

OS MARPAT 127:249431

AB A metal sulfide film is formed on a substrate by application of a solution of ≥ 1 metal compound precursor comprising ≥ 1 ligand RCS₂ or RCOS and ≥ 1 solubility-improving ligand L, where R is (un)substituted alkyl or aryl and L is a monodentate or multidentate ligand, followed by thermal conversion of the precursor to the metal sulfide. Thus, a 5% solution of

Ca(SAc)2.15-crown-5 in EtOH was applied to a suitable substrate (e.g., Si or indium tin oxide) by dip coating or spin coating and heated at 700° under N for 15-30 min to form a CaS film .apprx.100 nm thick. Thicker films could be obtained by performing multiple coating steps. The films are especially useful in electroluminescent flat-panel displays.

L6 ANSWER 20 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:219984 CAPLUS
DN 126:324477

TI Metal thiolate compounds: processable ceramic precursors
AU Schluter, Rodney D.; Krauter, Gertrud; Rees, William S., Jr.
CS Georgia Institute of Technology, School of Chemistry and Biochemistry,
School of Materials Science and Engineering and the Molecular Design
Institute, Atlanta, GA, 30332-0400, USA
SO Journal of Cluster Science (1997), 8(1), 123-154
CODEN: JCSCEB; ISSN: 1040-7278
PB Plenum
DT Journal
LA English
AB Full crystallog. characterization was obtained for [Hg(SBz)2] ∞ (9),
ClHgSBz·TMEDA (10), [ClHgS-i-Pr] ∞ (11), [ClHg(S-neo-
Pent)·0.5Py] ∞ (12), In[S-2,4,6-(i-Pr)3C6H2]3·2MeCN
(13), [In(S-2-MeO-5-Me-C6H3)3]2 (14) and In(S-o-C6H4CH2NMe2)3 (15).
Relevant metal thiolate interactions, terminal and bridging, are
highlighted within the realm of thermolytic conversion of these species
into binary metal thiolates. Pertinent crystallog. data for these compds.
include: 9: space group C2/c, a 22.599(4), b 4.334(1), c 29.596(5) Å,
 β 106.76(1)°, V = 2775.6 Å³, Z = 8, R = 3.6%; 10: space
group P.hivin.1, a 8.136(2), b 9.958(7), c 11.834(3) Å, α
108.71(2), β 92.93(2), γ 109.05(2)°, V = 845.3 Å³, Z
= 2, R = 5.0%; 11: space group C2, a 21.430(7), b 4.678(2), c 6.724(2)
Å, β 90.43°, V = 674.0 Å³, Z = 2, R = 3.9%; 12: C2, a
16.732(2), b 11.200(1), c 11.929(2) Å, β 104.21(1)°, Z =
4, R = 3.5%; 13: P.hivin.1, a 13.680(8), b 13.815(6), c 15.155(9) Å,
 α 77.77(4), β 72.57(4), γ 88.18(4)°, V =
2669.1 Å³, Z = 8, R = 12.0%; 14: C2, a 8.323(2), b 24.970(4), c
12.466 [2] Å, β 104.32(2)°, Z = 4, R = 8.2%; 15: P21/c, a
17.587(5), b 11.786(2), c 13.865(2) Å, β 101.66(2)°,
 β 101.66(2)°, Z = 4, R = 3.2%. The mols.-to-materials
transition, from a relatively simple divalent system, to the more
mechanistically complex trivalent metal system is outlined.

L6 ANSWER 21 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:93339 CAPLUS
DN 126:106579

TI Lithium salts and their use in electrolytes and lithium batteries
IN Shigehara, Junko; Nakanaga, Takefumi; Inubushi, Akyoshi; Kameshima,
Takashi

PA Otsuka Kagaku Kk, Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF

DT Patent
LA Japanese

FAN.CNT 1

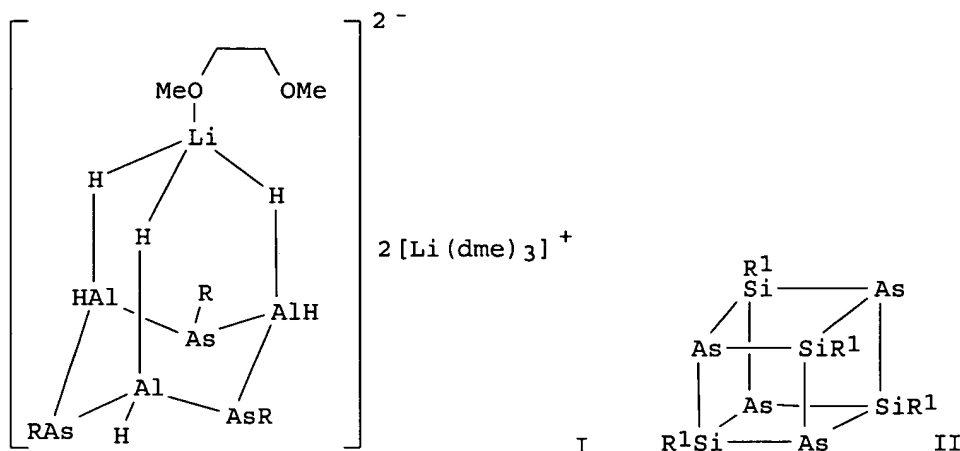
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08301879	A2	19961119	JP 1995-107277	19950501
PRAI	JP 1995-107277		19950501		

OS MARPAT 126:106579

AB The salts are (RX)4Al-Li+, Li+(R1X)3Al-XR2XAl-(R1X)3Li+, or
Li+(R1X)3Al-XR3[XAl-(R1X)3Li+]2 [R, R1 = C \leq 20 chain or cyclic
alkyl, C \leq 20 alkenyl, methoxy-terminated oligoethyleneoxy (repeating
number of ethyleneoxy 1-21), Ph, C \leq 4 group-substituted Ph, C \leq 20
aryl, furfuryl, tetrahydrofurfuryl; R2 = C \leq 20 alkylene, C \leq 20
phenylalkylene or phenylene, C \leq 20 alkenylene, (CH2CH2O)_nCH2CH2 (n
 \leq 20), C \leq 30 arylene, C \leq 30 aralkylene, C \leq 30
alkylenediphenylene; R3 = trivalent aliphatic or aromatic hydrocarbyl; X = O or
S bonding Al to R, R1, R2 or R3]. The electrolytes are obtained by
dissolving the salts in nonaq. solvents or polymers. The Li batteries

consist of the electrolytes and Li+-intercalatable cathodes and anodes.
The salts give high transference number and high-safety batteries.

L6 ANSWER 22 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:713481 CAPLUS
DN 126:83595
TI Lithium arsinooalanes as arsenide sources: a simple route to the Zintl
anion As³⁻ and the synthesis of a tetraarsatetrasilacubane
AU Driess, Matthias; Merz, Klaus; Pritzkow, Hans; Janoschek, Rudolf
CS Anorganisch-Chemisches Institut der Universitat, Heidelberg, D-69120,
Germany
SO Angewandte Chemie, International Edition in English (1996), 35(21),
2507-2510
CODEN: ACIEAY; ISSN: 0570-0833
PB VCH
DT Journal
LA English
GI



AB LiAlH₄ reacts with H₂AsR (R = H, SiPr₃, SiMe₂(CMe₂iPr)) in DME to give Li[Al(AsHR)₄] (R = H, SiPr₃) and I, resp. LiAl(AsHR)₄ (R = H, SiPr₃) decompose in solution in the presence of TMEDA to give [Li(TMEDA)]₃As₇, containing the Zintl ion. LiAl(AsH₂)₄ reacts with R₁SiCl₃ (R₁ = 2,4,6-iPr₃C₆H₂) to give II. The crystal and mol. structures of I, II and [Li(TMEDA)]₃As₇ were determined by x-ray crystallog. Geometry optimization of (AsSiMe)₄, carried out by the B3LYP/6-31G* d.-functional method, gave results very similar to the x-ray crystallog. determined structure of II; the calculated ²⁹Si NMR chemical shift also agreed with that for II.
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 23 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:531341 CAPLUS
DN 125:264337
TI Structural studies on indium and tin thiobenzoates
AU Singh, P.; Bhattacharya, S.; Gupta, Vishnu, D.; Noeth, Heinrich
CS Faculty Science, Banaras Hindu Univ., Varanasi, 221005, India
SO Chemische Berichte (1996), 129(9), 1093-1098
CODEN: CHBEAM; ISSN: 0009-2940
PB VCH
DT Journal
LA English
AB In(III) and Sn(IV) thiocarboxylates were prepared and characterized on the basis of their IR, ¹³C-, and ¹⁹Sn-NMR data. In[S(O)CPh]₃ decomp. into the sulfido complex In(S)[S(O)CPh]. The corresponding In[SAC]₃ is thermally too unstable to be isolated. [Et₃NH]{In[S(O)CPh]₄} was characterized by x-ray crystallog. which revealed a distorted tetrahedral coordination at the In atom. X-ray diffraction anal. of the complexes BuSn[S(O)CPh]₃ and Cl₂Sn[S(O)CPh]₂ showed distorted tetrahedral and

cis-octahedral structures, resp.

L6 ANSWER 24 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1996:502939 CAPLUS

DN 125:221926

TI Synthetic, characterization and decomposition studies of indium sulfide precursors

AU Schluter, Rodney D.; Luten, Henry A.; Rees, William S., Jr.

CS School Chemistry and Biochemistry, Georgia Inst. Technology, Atlanta, GA, 30332-0400, USA

SO Materials Research Society Symposium Proceedings (1996), 410 (Covalent Ceramics III--Science and Technology of Non-Oxides), 97-101

CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

AB The synthesis, characterization and decomposition of several In thiolates containing the bulky substituted aryl ligand 2,4,6-i-Pr₃C₆H₂ (Ar') or the internally chelating ligands 2-MeO,5-MeC₆H₃ (A'') and o-C₆H₄CH₂NMe₂ (Ar''') are described. Two synthetic methods were used: metathesis reactions between Li thiolates and the appropriate metal halides and the addition of elemental metal to diaryl disulfides. The thermal decomposition of each In precursor gave In₂S₃, based on thermogravimetric data. The homoleptic compound In(SAr')₃ can be isolated as a yellow oil. This liquid precursor was derivatized by the reversible formation of MeCN and THF adducts. Although, the mol. exists as a monomer in both adducts, the coordination number of the metal and the orientation of the ligands are markedly different. The internally chelating In(SAr'')₃ and In(SAr''')₃ adopt contrasting dimeric and monomeric structures resp. The crystal structures of In(SAr')₃.THF, In(SAr'')₃.2MeCN and [In(SAr''')₃]₂ were determined

L6 ANSWER 25 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:819659 CAPLUS

DN 124:30019

TI Chloro(aryloxy/alkoxy)gallium compounds: synthesis and structures of (2,4,6-Me₃C₆H₂O)₂GaCl.tBuNH₂, (2,6-(tBu)₂-4-(Me)C₆H₂O)GaCl₂.OEt₂ and [tBuNH₃]+[(Cl₃Ga)2O-2,4,6-Me₃C₅H₂]-

AU Swamy, K. C. Kumara; Veith, Michael; Huch, Volker

CS Sch. Chem., Central Univ. Hyderabad, Hyderabad, 500134, India

SO Bulletin de la Societe Chimique de France (1995), 132(5-6), 540-44

CODEN: BSCFAS; ISSN: 0037-8968

PB Elsevier

DT Journal

LA English

AB Reaction of [ClGa(tBuN)2SiMe2]₂ 1 with 2,4,6-trimethylphenol (1:2 stoichiometry) affords (2,4,6-Me₃C₆H₂O)₂GaCl.tBuNH₂ 2. This main product is accompanied by a crystalline side product which has the composition tBuNH₃+ {2,4,6-Me-C₅H₂O}(GaCl₃)₂- 6 as found from x-ray structure anal. A similar reaction of 1 with t-butanol affords a crystalline product which was formulated as (tBuO)₂GaCl. When 2,6-di-Me benzenethiol is used, the compound Ga(S-2,6-Me₂C₆H₃)₃.tBuNH₂ is isolated. The reaction of gallium trichloride with 2,6-(tBu)₂-4-Me-C₆H₂OLi.OEt₂ in toluene led to {2,6-(tBu)₂-4-Me-C₆H₂O}GaCl₂.OEt₂ 5. The identity of 2, 5 and 6 were confirmed by x-ray structure determination; 5 is the first structurally characterized dichloro(aryloxy)gallane and 2 exists as a H-bonded dimer in the solid state. Compound 6 contains an alcoholate anion R-O-, the oxygen atom of which is in a trigonal planar environment of two gallium and one carbon atom.

L6 ANSWER 26 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:814130 CAPLUS

DN 123:340298

TI X-ray crystal structure of a monomeric tris(arsino)gallane, ((Me₃Si)2As)₃Ga

AU Wells, R. L.; Self, M. F.; Baldwin, R. A.; White, P. S.

CS Dept. Chemistry, Duke Univ., Durham, NC, USA

SO Report (1994), DU/DC/TR-44; Order No. AD-A282343, 16 pp. Avail.: NTIS

From: Gov. Rep. Announce. Index (U. S.) 1994, 94(22), Abstr. No. 462,034

DT Report

LA English
AB Early effects in organogallium-As synthetic chemical centered on the use of alkane elimination reactions, as evidenced by the work of Coates and coworkers in the 1960. Through their efforts, they were able to isolate mono(arsino) gallanes and show that intermol. As-Ga bonding to form four-coordinate Ga and As dominates the structural properties of these compds. The authors desired to obtain sterically hindered arsinogallanes by this method. However, the practicality of alkane elimination was severely diminished as the steric bulk of the substituents was increased. Subsequently, the authors employed a coupling reaction involving a Li arsenide and a chlorogallane to successfully isolate the first example of a tris(arsino)gallane which was shown by x-ray anal. to be a monomer containing 3-coordinate Ga and As. The coupling method was also used in the formation of the tris(arsino)gallanes synthesized in the authors' laboratory

L6 ANSWER 27 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:776401 CAPLUS

DN 123:216870

TI Synthesis and Characterization of Group 13 and 15 Selenolates and Tellurolates and the x-ray Crystal Structures of Ga[TeSi(SiMe₃)₃]₃, In[SeC(SiMe₃)₃]₃, {In[SeSi(SiMe₃)₃]₃}₂(μ-DMPE), and P[SeSi(SiMe₃)₃]₃

AU Wuller, Stephen P.; Seligson, Allen L.; Mitchell, Gregory P.; Arnold, John
CS Department of Chemistry, University of California, Berkeley, CA, 94720, USA

SO Inorganic Chemistry (1995), 34(19), 4854-61

CODEN: INOCAJ; ISSN: 0020-1669

PB American Chemical Society

DT Journal

LA English

AB A broad range of chalcogenolate complexes of Group 13 and 15 elements were isolated and studied. Metathesis of AlEt₂Cl with (THF)LiSeSi(SiMe₃)₃ gave (THF)AlEt₂[SeSi(SiMe₃)₃] in good yield. Chalcogenolysis of Al[N(SiMe₃)₂]₃ with 3 equiv of HESi(SiMe₃)₃ (E = Se, Te) afforded Al[ESi(SiMe₃)₃]₃ (E = Se, Te). Treatment of GaCl₃ with 3 equiv of (THF)₂LiTeSi(SiMe₃)₃ produced the homoleptic species Ga[TeSi(SiMe₃)₃]₃; likewise, addition of 3 equiv of (DME)LiSeC(SiMe₃)₃ to InCl₃ yielded In[SeC(SiMe₃)₃]₃. Reaction of InCl₃ with 3 equiv of (THF)₂LiSeSi(SiMe₃)₃ produced (THF)In[SeSi(SiMe₃)₃]₃ in low yield. Homoleptic chalcogenolates, In[ESi(SiMe₃)₃]₃ (E = Se, Te) were prepared by chalcogenolysis of InCp₃ (Cp = η⁵-C₅H₅). Addition of THF, pyridine, or TMEDA (N,N,N',N'-tetramethylethylenediamine) to In[SeSi(SiMe₃)₃]₃ gave 1:1 adducts, (L)In[SeSi(SiMe₃)₃]₃ (L = THF, pyridine, TMEDA). Addition of DMPE (1,2-bis(dimethylphosphino)ethane) to In[SeSi(SiMe₃)₃]₃ produced a 1:1 complex In[SeSi(SiMe₃)₃]₃(DMPE) that was characterized in solution by NMR spectroscopy; attempts to isolate the complex yielded instead the crystalline 2:1 {In[SeSi(SiMe₃)₃]₃}₂(μ-DMPE), whose x-ray structure was determined. Indium(I) complexes InESi(SiMe₃)₃ (E = Se, Te) were isolated from either the metathesis of InCl with (THF)₂LiESi(SiMe₃)₃ or chalcogenolysis with InCp. Likewise, chalcogenolysis with TlCp produced TlESi(SiMe₃)₃ (E = Se, Te). Reaction of PCl₃ with (THF)₂LiSeSi(SiMe₃)₃ produced P[SeSi(SiMe₃)₃]₃ in good yield. The As derivative As[SeSi(SiMe₃)₃]₃ was isolated from the reaction of As(NMe₂)₃ and 3 equiv of selenol. Similarly, the Sb and Bi complexes M[ESi(SiMe₃)₃]₃ (M = Sb, E = Se, Te; M = Bi, E = Se, Te) were prepared in good yields by chalcogenolysis with Sb(NMe₂)₃ or Bi[N(SiMe₃)₂]₃. Crystallog. data are as follows. Ga[TeSi(SiMe₃)₃]₃: monoclinic, space group P2₁/c, Z = 4, a 24.235(4), b 13.808(3), c 18.689(4) Å, β 106.424(16)°, R = 0.0926, Rw = 0.0731. In[SeC(SiMe₃)₃]₃: triclinic, space group P₁h₁1₁, Z = 2, a 13.772(4), b 13.778(4), c 16.026(4) Å, α 74.75(2), β 75.27(2), γ 62.12(2)°, R = 0.0424, Rw = 0.0476. {In[SeSi(SiMe₃)₃]₃}₂(μ-DMPE): triclinic, space group P₁h₁1₁, Z = 2, a 13.655(3), b 13.8323(20), c 18.442(3) Å, α 97.874(13), β 104.066(16), γ 113.708(15)°, R = 0.0323, Rw = 0.0332. P[SeSi(SiMe₃)₃]₃: monoclinic, space group P2₁/c, Z = 6, a 22.706(4), b 13.959(5), c 17.619(3) Å, β 93.851(14)°, R = 0.0554, Rw = 0.0463.

L6 ANSWER 28 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:713222 CAPLUS

DN 123:159332

TI Monomeric selenolato- and tellurolato-aluminum(III) and -gallium(III) [Me₃NM(ER)₃] (E = Se, Te; R = alkyl, aryl), via trimethylamine alane/gallane cleavage of diorgano-dichalcogens
 AU Gardiner, Michael G.; Raston, Colin L.; Tolhurst, Vicki-Anne
 CS Fac. Sci. Technol., Griffith Univ., Brisbane, 4111, Australia
 SO Journal of the Chemical Society, Chemical Communications (1995), (14), 1457-8
 CODEN: JCCCAT; ISSN: 0022-4936
 PB Royal Society of Chemistry
 DT Journal
 LA English
 AB The reaction of diorgano-dichalcogens (ER)₂ (E = Se or Te) with trimethylamine adducts of alane or gallane yields trimethylamine adducts of the tris(selenolato- or tellurolato-)metal(III) species [Me₃NM(ER)₃] (M = Al, Ga; E = Se, Te; R = Et, Ph, CH₂Ph). The x-ray crystal structures of [Me₃NAl(SeEt)₃] and [Me₃NAl(TePh)₃] were determined, showing them to be four coordinate, monomeric species in the solid state.

L6 ANSWER 29 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1995:538829 CAPLUS
 DN 123:83428
 TI Synthesis and Structure of Unassociated Mono-, Di- and Trithiolate Derivatives of Aluminum and Gallium: Investigation of Al-S and Ga-S π -Bonding
 AU Wehmschulte, Rudolf J.; Ruhlandt-Senge, Karin; Power, Philip P.
 CS Department of Chemistry, University of California, Davis, CA, 95616, USA
 SO Inorganic Chemistry (1995), 34(10), 2593-9
 CODEN: INOCAJ; ISSN: 0020-1669
 PB American Chemical Society
 DT Journal
 LA English
 AB The synthesis and characterization of several sterically crowded Al and Ga thiolates are described. The major reason for these studies was the study of the possible occurrence of π -bonding in Al-S and Ga-S bonds and the determination of the steric requirements for the isolation of monomeric heavier main Group 3 thiolates in the solid state. The compds. examined were RAl(SMes*)₂ (R = Bu, 1; t-Bu, 2), Mes*₂GaSR (Mes* = 2,4,6-t-Bu₃C₆H₂, R = Me, 3; Ph, 4), BuGa(SMes*)₂, (5) (t-Bu₂AlSTrip)₂ (6) (Trip = 2,4,6-i-Pr₃C₆H₂), (THF)Al(STrip)₃ (7). They were characterized by x-ray crystallog. (1-3, 5-7) and by NMR and IR spectroscopy. The M-S, p-p, π -bonding is weak and has an upper limit of 8-9 kcal mol⁻¹. Restricted rotation around an M-S bond was detected only in the cases of 3 and 4. Crystal data at 130 K with Mo K α (λ = 0.710 69 Å) (2, 5-7) or Cu K α (λ = 1.541 78 Å) (1, 3) radiation; 1, C₄₀H₆₇AlS₂, a 18.563(5), b 27.171(11), c 32.089(4) Å, orthorhombic, Z = 16 (two independent mols.), space group Pbca, R = 0.087 for 6746 (I > 2 σ (I)) reflections; 2, C₄₀H₆₇AlS₂, a 17.375(9), b 27.982(10), c 17.868(8) Å, β 112.29(2)°, Z = 8 (two independent mols.), monoclinic, space group P2₁/c, R = 0.082 for 8425 (I > 2 σ (I)) reflections; 3, C₃₇H₆₁GaS, a 33.654(8), b 10.433(4), c 20.258(8) Å, Z = 8, orthorhombic, space group Pbcn, R = 0.066 for 3164 (I > 2 σ (I)) reflections; 5, C₄₀H₆₇GaS₂, a 18.521(8), b 27.342(10), c 32.046(12) Å, orthorhombic, Z = 16 (two independent mols.), space group Pbca, R = 0.144 for 3297 (I > 2 σ (I)) reflections; 6, C₄₆H₈₂Al₂S₂, a 20.820(8), b 14.598(6), c 16.118(4) Å, Z = 4, orthorhombic, space group Pna2₁, R = 0.062 for 2469 (I > 2.5 σ (I)) reflections; 7, (THF)Al(STrip)₃·0.5C₆H₁₄, C₅₂H₈₄AlOS₃, a 15.589(6), b 13.622(5), c 26.308(12) Å, β 99.88(4)°, Z = 4, monoclinic, space group P2₁/c, R = 0.075 for 5697 (I > 3 σ (I)) reflections.

L6 ANSWER 30 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1995:301313 CAPLUS
 DN 122:265524
 TI X-ray crystal structure of a monomeric tris(arsino)gallane, [(Me₃Si)₂As]₃Ga
 AU Wells, Richard L.; Self, Mark F.; Baldwin Ryan A.
 CS Dep. Chem., Univ. North Carolina, Chapel Hill, NC, 27514, USA
 SO Journal of Coordination Chemistry (1994), 33(4), 279-85
 CODEN: JCCMBQ; ISSN: 0095-8972

PB Gordon & Breach
 DT Journal
 LA English
 AB The solid-state structure of $[(\text{Me}_3\text{Si})_2\text{As}]_3\text{Ga}$ (1), prepared from $\text{LiAs}(\text{SiMe}_3)_2$ and $[\text{Cl}_2\text{GaP}(\text{SiMe}_3)_2]_2$, was established by single-crystal x-ray anal. Triclinic crystals of 1 belong to the space group $P\bar{1}$, with a 10.7529(23), b 10.7899(23), c 17.55(6) Å, α 88.077(23), β 84.537(23), γ 60.282(16)° for $Z = 2$. Refinement of atomic parameters converged at $R = 0.058$ ($R_w = 0.064$) for 2378 observed reflections with $I > 2.5\sigma(I)$. The monomeric mol. adopts a trigonal planar configuration with $\text{Ga-As} = 2.4171(23)$, $2.4250(22)$ and $2.4213(24)$ Å, and As-Ga-As (average) = $120.00(1)^\circ$. 1 is only the 2nd example of a monomeric tris(arsino)gallane to be structurally characterized in this manner.

L6 ANSWER 31 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:170673 CAPLUS

DN 122:22492

TI Synthesis and characterization of indium thiolates: structures of $[\text{Ph}_4\text{P}][\text{In}(\text{SBut})_4] \cdot \text{CH}_3\text{OH}$ and $[\text{Ph}_4\text{P}][\text{In}(\text{SCH}_2\text{CH}_2\text{S})_2]$

AU Hirpo, Wakgari; Sutorik, Anthony C.; Dhingra, Sandeep; Kanatzidis, Mercouri G.

CS Dep. Chem. Center Fundamental Materials Research, Michigan State University, East Lansing, MI, 48224, USA

SO Polyhedron (1994), 13(19), 2797-2800

CODEN: PLYHDE; ISSN: 0277-5387

DT Journal

LA English

AB Reaction of InCl_3 with four equivalent of KSBut in the presence of Ph_4PCl gave monomeric $[\text{Ph}_4\text{P}][\text{In}(\text{SBut})_4] \cdot \text{MeOH}$ (1) which crystallized from MeOH as colorless hexagonal shaped crystals. Reaction of InCl_3 with $\text{NaSCH}_2\text{CH}_2\text{SNa}$ and Ph_4PBr gave $[\text{Ph}_4\text{P}][\text{In}(\text{SCH}_2\text{CH}_2\text{S})_2]$ (2), which readily crystallized from MeCN as colorless crystals. Both 1 and 2 were shown by x-ray structures to have tetrahedral coordination of In .

L6 ANSWER 32 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1994:67908 CAPLUS

DN 120:67908

TI Homoleptic disilylphosphido complexes $\{M[\text{P}(\text{SiR}_3)_2]_x\}_n$ and their use as precursors to phosphide semiconductor nanoclusters

AU Goel, Subhash C.; Matchett, Michael A.; Cha, Dokun; Chiang, Michael Y.; Buhro, William E.

CS Dep. Chem., Washington Univ., St. Louis, MO, 63130, USA

SO Phosphorus, Sulfur and Silicon and the Related Elements (1993), 76(1-4), 549-52

CODEN: PSSLEC; ISSN: 1042-6507

DT Journal

LA English

AB Several homoleptic disilylphosphido complexes are described, which are relatives of the known homoleptic disilylamido complexes. The differing properties of the amido and phosphido ligands are ascribed to normal periodic relations. General routes for preparation are outlined.

L6 ANSWER 33 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1993:506317 CAPLUS

DN 119:106317

TI Preparation of Group IIIA chalcogenide films

IN Gysling, Henry James; Wernberg, Alex A.

PA Eastman Kodak Co., USA

SO PCT Int. Appl., 27 pp.

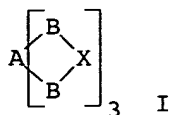
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9304212	A1	19930304	WO 1992-US7106	19920825
	W: CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE				



AB A solution of a precursor compound of the formula $[RaA(BR')_b]_3$ or I, where A = Al, Ga, or In; B = S, Se, or Te; R, R' = (un)substituted alkyl or aryl; a = 0-2; b, c = 1-3; and X = COR, CNR₂, CR, PR₂, or P(OR)₂, is sprayed to form a mist, which is passed into a heated chamber containing a heated substrate; and the precursor compound is deposited on the substrate and thermally decomposed to form a Group IIIA chalcogenide film.

L6 ANSWER 34 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1992:663545 CAPLUS

DN 117:263545

TI Geometric isomers in indium(III) halo complexes: Preparation and crystal structure of trichlorotris(thiourea)indium

AU Malyarik, M. A.; Ilyukhina, A. B.; Petrosyants, S. D.; Buslaev, Yu. A.

CS Inst. Obshch. Neorg. Khim. im. Kurnakova, Russia

SO Zhurnal Neorganicheskoi Khimii (1992), 37(7), 1504-8

CODEN: ZNOKAQ; ISSN: 0044-457X

DT Journal

LA Russian

AB mer-[InCl₃(Thio)₃] (Thio = thiourea) was prepared from an aqueous solution of InCl₃ and thiourea. The complex is triclinic, space group P.hivin.1, a 8.519(2), b 10.555(2), c 13.325(2) Å, α 111.30(2), β 99.00(1), γ 97.68(2)°, Z = 3, R = 0.0372, Rw = 0.0465. The anomalously large In-Cl distances are analyzed based on the mutual effect of ligands in nontransition metal d10 metal complexes.

L6 ANSWER 35 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1992:583697 CAPLUS

DN 117:183697

TI Synthesis of homoleptic ionic indium(III) thiolates and molecular structure of (NMe₄)[In(SC₆H₃-2,6-Me₂)₄]

AU Lee, In Whan; Park, Young Whan; Do, Youngkyu

CS Dep. Chem., Korea Adv. Inst. Sci. Technol., Taejon, 305-701, S. Korea

SO Bulletin of the Korean Chemical Society (1992), 13(4), 453-5

CODEN: BKCSDE; ISSN: 0253-2964

DT Journal

LA English

AB Me₄N[In(SR)₄] (I; R = Ph, 2,6-Me₂C₆H₃) were prepared and anal., structurally and spectroscopically. I (R = 2,6-Me₂C₆H₃) crystallized as monoclinic, space group P2₁/n, a 10.894(3), b 19.313(3), c 17.393(3) Å, β 91.74(2)°, Z = 4, R = 0.0376, Rw = 0.0410.

L6 ANSWER 36 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1992:482394 CAPLUS

DN 117:82394

TI Use of silylarsines to prepare gallium-arsenic compounds

AU Wells, R. L.

CS Dep. Chem., Duke Univ., Durham, NC, USA

SO Report (1991), DU/DC/TR-20; Order No. AD-A236 742, 39 pp. Avail.: NTIS

From: Gov. Rep. Announce. Index (U. S.) 1991, 91(20), Abstr. No. 154,573

DT Report

LA English

AB A number of Ga As compds./systems were realized by applying the general method of synthesis referred to as dehalosilylation between a silylarsine and a halogallane. Among those prepared are bis and tris(arsino)gallanes, with one of the latter being isolated as the monomer, a compound containing a single Ga₃As unit, and compds. containing rings with As, halogen mixed-bridging of Ga centers. This method was used to prepare GaAs. The methodologies developed in these studies are currently being applied to

the synthesis of addnl. new Ga As compds./systems, and they are finding much practicality in the synthesis of other related III-V species. An In-As compound, as well as its P analog was isolated and characterized. The fact that these 2 In compds. can be prepared adds credence to the suggestion that mixed-bridge compds. may be common species in the area of chemical involving the heavier elements of Groups III and V.

- L6 ANSWER 37 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1991:177123 CAPLUS
DN 114:177123
TI Preparation and structure of tris[2,4,6-tris(trifluoromethyl)thiophenolato]indium(III) etherate
AU Bertel, N.; Noltemeyer, M.; Roesky, H. W.
CS Inst. Anorg. Chem., Univ. Goettingen, Goettingen, D-3400, Germany
SO Zeitschrift fuer Anorganische und Allgemeine Chemie (1990), 588, 102-8
CODEN: ZAACAB; ISSN: 0044-2313
DT Journal
LA German
AB Reaction of NaL (HL = 2,4,6-tris(trifluoromethyl)thiophenol) and InCl₃ in the molar ratio of 1:3 in Et₂O forms InL₃.Et₂O (I) in 92% yield. I was also obtained by reaction of CpIn (Cp = cyclopentadienyl) and C₆H₂(CF₃)₃SH. The structure of I is discussed. I is triclinic, space group P1, a 1334.1(6), b 1256.2(7), c 1403.0 (9) Å, α 105.68(4), β 101.37(4), γ 115.64 (4)°, Z = 2, dc = 1.82 g cm⁻³, R = 0.047, Rw = 0.054.
- L6 ANSWER 38 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1990:643553 CAPLUS
DN 113:243553
TI Linkage isomerism of amide ligands in indium fluoro complexes
AU Petrosyants, S. P.; Malyarik, M. A.; Buslaev, Yu. A.
CS Inst. Obshch. Neorg. Khim. im. Kurnakova, Moscow, USSR
SO Zhurnal Neorganicheskoi Khimii (1990), 35(8), 2057-61
CODEN: ZNOKAQ; ISSN: 0044-457X
DT Journal
LA Russian
AB The reaction of In(III) fluoro complexes was studied with amides in aqueous solution by 19F NMR spectroscopy. Six-coordinate [InFnLm(H₂O)_{6-n-m}]_{3-n} (L = thiourea, tetramethylthiourea, thioacetamide) are formed preferentially with In-S linkage. At specific conditions S- and N-bonded isomers coexist. For urea and acetamide only N-bonded isomers are formed in the presence of F⁻.
- L6 ANSWER 39 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1990:139108 CAPLUS
DN 112:139108
TI Contributions to the chemistry of phosphorus. 196. Synthesis and properties of the organotris(phosphino)silanes RSi(PH₂)₃ (R = Me, Et, Me₂CH, Ph)
AU Baudler, Marianne; Scholz, Guido; Oehlert, Wolfgang
CS Inst. Anorg. Chem., Univ. Koeln, Cologne, D-5000/41, Fed. Rep. Ger.
SO Zeitschrift fuer Naturforschung, B: Chemical Sciences (1989), 44(6), 627-31
CODEN: ZNBSEN; ISSN: 0932-0776
DT Journal
LA German
OS CASREACT 112:139108
AB The new organotris(phosphino)silanes RSi(PH₂)₃ (I; R = Me, Et, CHMe₂, Ph) have been synthesized by reaction of the appropriate chlorosilanes RSiCl₃ with LiAl(PH₂)₄ in the molar ratio 1:0.75. With an excess of RSiCl₃ the mixed chlorophosphinosilanes RSi(PH₂)Cl₂ and RSi(PH₂)₂Cl have also been obtained, the ³¹P NMR data of which are reported. I could be isolated in pure form and have been fully characterized by elemental analyses and various spectroscopic methods.
- L6 ANSWER 40 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1989:469773 CAPLUS
DN 111:69773
TI The properties and structures of tris(benzenethiolato)indium(III) -

bis(pyridine) adduct and tri(benzeneselenolato)indium(III)

AU Annan, Theodore A.; Kumar, Rajesh; Mabrouk, Hassan E.; Tuck, Dennis G.;
Chadha, Raj K.

CS Dep. Chem. Biochem., Univ. Windsor, Windsor, ON, N9B 3P4, Can.

SO Polyhedron (1989), 8(7), 865-71
CODEN: PLYHDE; ISSN: 0277-5387

DT Journal

LA English

AB In(SPh)₃ and In(SePh)₃ (I) were prepared from In and PhEPh (E = S, Se), and characterized. In(SPh)₃ reacts with pyridine to give In(SPh)₃py₂ (II). X-ray crystal structures of I and II were determined. Crystals of I are monoclinic, space group C2/c, Z = 4; those of II are triclinic space group P₂1, Z = 4. II has 2 different conformations in the solid state, related to the orientations of the Ph rings of the SPh ligand. The crystalline form of I is a homopolymer in which 6-coordinate In-atoms are linked through bridging Se atoms. The Ph groups of the SePh ligand show an interesting disorder pattern. The structure of In(SPh)₃ is discussed in this context.

L6 ANSWER 41 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1989:47291 CAPLUS

DN 110:47291

TI Direct electrochemical synthesis of alkane- and arenethiolato derivatives of indium and thallium

AU Green, James H.; Kumar, Rajesh; Seudeal, Narace; Tuck, Dennis G.

CS Dep. Chem. Biochem., Univ. Windsor, Windsor, ON, N9B 3P4, Can.

SO Inorganic Chemistry (1989), 28(1), 123-7
CODEN: INOCAJ; ISSN: 0020-1669

DT Journal

LA English

AB The electrochem. oxidation of anodic In in MeCN solns. of thiols RSH (R = Et, Bu, C(CH₃)₂C₂H₅, Ph, 2-C₁₀H₇, C₆F₅) was shown to give thiolato derivs. of In(I), -(II), or -(III), depending on R and on the exptl. conditions. With R = Et or Bu, electrolysis in the absence of O gave the hitherto unreported InSR compds., while, with R = C₅H₁₁ or 2-C₁₀H₇, the products are In(SR)₂, formulated as the In-In-bonded In₂(SR)₄. Arenethiols yielded In(SR)₃, and products of this stoichiometry were always obtained in the presence of O. The structures of these compds. are discussed, as are the reactions of the In(I) and -(II) species with I and certain other oxidizing agents. Corresponding reactions with Tl anodes gave TlSR for all R studied (CPh, C₆H₄CH₃-o, C₆H₄CH₃-m, 2-C₁₀H₇).

L6 ANSWER 42 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1988:465903 CAPLUS

DN 109:65903

TI Anionic perphosphido and perarsenido complexes of gallium and indium

AU Carrano, Carl J.; Cowley, Alan H.; Giolando, Dean M.; Jones, Richard A.;
Nunn, Christine M.; Power, John M.

CS Univ. Texas, Austin, TX, 78712, USA

SO Inorganic Chemistry (1988), 27(15), 2709-14
CODEN: INOCAJ; ISSN: 0020-1669

DT Journal

LA English

AB Reaction of 4 equiv of LiEPh₂ with MCl₃ in THF at -78° yields [Li(THF)₄][M(EPh₂)₄] (M = Ga, E = P, As; M = In, E = P) in 70-80% yields. The air-sensitive complexes are yellow and crystalline and can be recrystd. from THF/toluene mixts. Their x-ray structures were determined. The anionic moieties are very similar. The M-E bond lengths, EPh₂ geometries, and M(EC₂)₄ conformations are indicative of M-E single bonding in each case.

L6 ANSWER 43 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1988:465800 CAPLUS

DN 109:65800

TI Reactions of some main group metals with diphenyl disulfide and diphenyl diselenide

AU Kumar, Rajesh; Mabrouk, Hassan E.; Tuck, Dennis G.

CS Dep. Chem. Biochem., Univ. Windsor, Windsor, ON, N9B 3P4, Can.

SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1988), (4), 1045-7

- DT Journal
LA English
AB In reacts with Ph_2E_2 (E = S, Se) in refluxing toluene to give $\text{In}(\text{EPh})_3$. Under similar conditions Sn gives $\text{Sn}(\text{EPh})_4$. Tl reacts with Ph_2Se_2 to form $\text{Tl}(\text{SePh})_3$, but does not react with Ph_2S_2 . Neither Zn nor Ga react with Ph_2E . With mixts. of Ph_2E_2 and I_2 In yields $\text{InI}(\text{EPh})_2$. The reactions of $\text{In}(\text{SePh})_3$ to give $\text{In}(\text{SePh})_3\text{L}_2$ (L = PPh_3 , 0.5 2,2'-bipyridine, 0.5 1,10-phenanthroline) are those of a typical $\text{In}(\text{III})$ Lewis acid. Possible factors affecting the reactions of metals with Ph_2S_2 or Ph_2Se_2 are briefly discussed.
- L6 ANSWER 44 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1988:56165 CAPLUS
DN 108:56165
TI Coordination compounds of indium. Part 43. Indium(III) derivatives of benzenethiol, and the crystal structure of tetraphenylphosphonium bromotris(benzenethiolato)indate(III), $\text{Ph}_4\text{P}[\text{BrIn}(\text{SPh})_3]$
AU Chadha, Raj K.; Hayes, Peter C.; Mabrouk, Hassan E.; Tuck, Dennis G.
CS Dep. Chem. Biochem., Univ. Windsor, Windsor, ON, N9B 3P4, Can.
SO Canadian Journal of Chemistry (1987), 65(4), 804-9
CODEN: CJCHAG; ISSN: 0008-4042
DT Journal
LA English
OS CASREACT 108:56165
AB $\text{In}(\text{SPh})_3$ is readily prepared by the reaction of InCl_3 and NaSPh in methanol. The compound is a Lewis acid, forming 1:1 adducts with 2,2'-bipyridine, 1,10-phenanthroline, N,N,N',N'-tetramethylethanediamine, bis(diphenylphosphino)ethane, and Me_2SO , and 1:2 adducts with pyridine, trimethylamine, and triphenylphosphine. Reaction with R_4NX (X = Cl, Br, I) or similar salts gives $\text{R}_4\text{N}[\text{XIn}(\text{SPh})_3]$ salts, which are 1:1 electrolytes. The structure of $\text{Ph}_4\text{P}[\text{BrIn}(\text{SPh})_3]$ has been determined by x-ray methods. The anion has distorted tetrahedral symmetry in the InBrS_3 kernel. The vibrational spectra of $\text{In}(\text{SPh})_3$ and its derivs. in the region 500-200 cm^{-1} are discussed.
- L6 ANSWER 45 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1986:525982 CAPLUS
DN 105:125982
TI Disilyl selenide (disilaselenane)
AU Drake, John E.; Glavincevski, Boris M.
CS Dep. Chem., Univ. Windsor, Windsor, ON, N9B 3P4, Can.
SO Inorganic Syntheses (1986), 24, 127-9
CODEN: INSYA3; ISSN: 0073-8077
DT Journal
LA English
AB The preparation is described of $(\text{H}_3\text{Si})_2\text{Se}$ from H_3SiI and $\text{Li}[\text{Al}(\text{SeH})_4]$, which was prepared in situ from LiAlH_4 and H_2Se .
- L6 ANSWER 46 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1986:218033 CAPLUS
DN 104:218033
TI Gallium analogs of iron-sulfide-thiolate compounds. Analysis of the structural parameters in gallium(III) and iron(III) chalcogenide compounds
AU Maelia, Lynn E.; Koch, Stephen A.
CS Dep. Chem., State Univ. New York, Stony Brook, NY, 11794, USA
SO Inorganic Chemistry (1986), 25(11), 1896-904
CODEN: INOCAJ; ISSN: 0020-1669
DT Journal
LA English
AB Several Ga-sulfide-thiolate compds. that are structural analogs of the well-known $\text{Fe}(\text{III})\text{-S}_2\text{-RS-}$ complexes were prepared and structurally characterized. Crystalline $[\text{Ga}(\text{SR})_4]\text{-}$ complexes (R = Me, Et, iso-Pr, Ph, 2,3,5,6-Me₄C₆H₃, 2,4,6-(iso-Pr)₃C₆H₂) were prepared by the reaction of either GaCl_3 or $[\text{GaCl}_4]\text{-}$ with 5 equiv of LiSR . $[\text{Ga}(\text{SR})_4]\text{-}$ were frequently isomorphous with the corresponding $[\text{Fe}(\text{SR})_4]\text{-}$ complex. The structures of $[\text{Pr}_4\text{N}][\text{Ga}(\text{SEt})_4]$ (I) and $[\text{Et}_4\text{N}][\text{Ga}(\text{SPh})_4]$ (II) were determined by x-ray crystallog. The GaS_4 core of I has nearly perfect Td symmetry, and Ga-S = 2.264(1) Å. There are 2 distinctive conformations of the thiolate

ligands in the $[\text{Ga}(\text{SPh})_4]^-$ anion of II. $[\text{Et}_4\text{N}]_2[\text{Ga}_2\text{S}_2(\text{SPh})_4]$ (III), which is an analog of $[\text{Fe}_2\text{S}_2(\text{S-p-MeC}_6\text{H}_4)_4]^{2-}$ (IV), was prepared and structurally characterized. The structures of III and IV and related solid-state compds. were analyzed in the context of a general discussion of the geometric parameters of edge-sharing tetrahedra.

L6 ANSWER 47 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1985:166810 CAPLUS

DN 102:166810

TI Preparation of phenyl(diorganothio)- and triorganothiogallanes from triphenylgallane and thiols

AU Hoffmann, Gerhard G.

CS Inst. Anorg. Chem., Univ. Wuerzburg, Wuerzburg, D-8700, Fed. Rep. Ger.

SO Journal of Organometallic Chemistry (1984), 277(2), 189-98

CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA German

AB Ph_3Ga reacts with alkyl- as well as arylthiols in the molar ratio 1:2 to form the corresponding phenyl(dialkylthio)- and phenyl(diarylthio)gallanes. When a molar ratio of 1:3 is used, the corresponding trialkylthio- and triarylthiogallanes are formed. The spectra and some of the phys. and chemical properties of the new compds. are reported. Some reactions of the thiogallanes with Me_3N as well as iodine are discussed.

L6 ANSWER 48 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1983:226900 CAPLUS

DN 98:226900

TI Complex compounds of indium(III) chloride and bromide with some organic ligands

AU Wassef, Marguerite A.; Gaber, M.

CS Coll. Women, Ain Shams Univ., Cairo, Egypt

SO Egyptian Journal of Chemistry (1982), Volume Date 1981, 24(1-3), 165-71

CODEN: EGJCA3; ISSN: 0367-0422

DT Journal

LA English

AB $\text{InCl}_3 \cdot \text{L}$ ($\text{L} = \text{Ph}_2\text{PCH}_2\text{CH}_2\text{PPh}_2$, $\text{Ph}_2\text{P}(\text{O})\text{CH}_2\text{CH}_2\text{P}(\text{O})\text{Ph}_2$), $\text{InCl}_3 \cdot 2\text{L} \cdot n\text{H}_2\text{O}$ [$\text{L} = \text{Me}_3\text{PhPCl}$, $n = 0$; $\text{L} = 2,2'$ -bipyridine (bpy), $n = 2, 3$], $\text{InX}_3 \cdot 3\text{Ph}_2\text{SO}$ ($\text{X} = \text{Cl}, \text{Br}$), $\text{InCl}_3 \cdot 4\text{Me}_2\text{SO}$, $\text{InX}_3 \cdot \text{L}$ [$\text{X} = \text{Cl}, \text{Br}$; $\text{L} = \text{dimethylphenanthroline}$, phenanthroline (phen)], $\text{InX}_3 \cdot 2\text{L}$ ($\text{X} = \text{Cl}, \text{Br}$, $\text{L} = \text{phen}$, $2,2',2''$ -tripyridine), $\text{InCl}_3 \cdot 1.5 \text{L}$ ($\text{L} = \text{phen}$, bpy, dimethylbipyridine, pyrazine), $\text{InBr}_3 \cdot \text{L} \cdot \text{EtOH}$ ($\text{L} = \text{dimethylbipyridine}$), and $\text{InBr}_3 \cdot 2\text{L}$ ($\text{L} = \text{pyrazine}$) were prepared and were characterized by IR spectra, elec. conductivity, and thermal decomposition studies.

L6 ANSWER 49 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1983:100135 CAPLUS

DN 98:100135

TI Coordination compounds of indium. Part 40. Reactions of nonaqueous solutions of indium(I) halides

AU Peppe, Clovis; Tuck, Dennis G.; Victoriano, Luis

CS Dep. Chem., Univ. Windsor, Windsor, N9B 3P4, Can.

SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1982), (11), 2165-8

CODEN: JCDBTI; ISSN: 0300-9246

DT Journal

LA English

AB InX ($\text{X} = \text{halide}$) are soluble at $<0^\circ$ in toluene containing certain neutral donor ligands (L). A detailed study of InBr -toluene-tetramethylethylenediamine (L') showed that the simplest solute present was $\text{InBr} \cdot 3\text{L}'$ which slowly ppts. solid $\text{InBr} \cdot 0.5\text{L}'$. Disproportionation of $\text{InX} \cdot n\text{L}$ occurs at $>0^\circ$, yielding In metal and $\text{In}(\text{II})$ or $\text{In}(\text{III})$ halide complexes, depending on X and the ligand. Solns. of InBr or InI can also be oxidatively inserted into RX ($\text{R} = \text{alkyl}$) producing organoindium(III) halides.

L6 ANSWER 50 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1980:436114 CAPLUS

DN 93:436114

TI Lithium tetrakis(thiocarbamato)aluminates
 AU Mortag, Michael; Moeckel, Klaus
 CS Sekt. Chem./Biol., Paedagog. Hochschule Erfurt/Muehlhausen, Muehlhausen,
 DDR-5700, Ger. Dem. Rep.
 SO Zeitschrift fuer Chemie (1980), 20(4), 153-4
 CODEN: ZECEAL; ISSN: 0044-2402
 DT Journal
 LA German
 AB Li(AlH₄) reacted with RNH₃[RNHCXS] (R = Pr, iso-Pr, Bu, iso-Bu,
 cyclohexyl; X = O, S) under N in absolute dry Et₂O to give Li[Al(RNHCXS)₄].

L6 ANSWER 51 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1978:190299 CAPLUS
 DN 88:190299
 TI Synthesis of sulfones from olefins via organoaluminum compounds
 AU Kuchin, A. V.; Akhmetov, L. I.; Yur'ev, V. P.; Tolstikov, G. A.
 CS Inst. Khim., Ufa, USSR
 SO Zhurnal Obshchei Khimii (1978), 48(2), 469-70
 CODEN: ZOKHAA; ISSN: 0044-460X
 DT Journal
 LA Russian
 AB R₃Al [R = 2-(3-cyclohexen-1-yl)ethyl, PhCH₂CH₂, PhCHMe] reacted with SO₂
 to give (RSO₂)₃Al, which were hydrolyzed to RSO₂H. The RSO₂H were treated
 with NaOMe and then ethylated with EtBr to give ≤97% RSO₂Et.

L6 ANSWER 52 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1976:428020 CAPLUS
 DN 85:28020
 TI Coordination compounds of indium. Part XXXI. Further studies of anionic
 complexes of indium(I)
 AU Habeeb, Jacob J.; Tuck, Dennis G.
 CS Dep. Chem., Univ. Windsor, Windsor, ON, Can.
 SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry
 (1972-1999) (1976), (10), 866-9
 CODEN: JCOTBI; ISSN: 0300-9246
 DT Journal
 LA English
 AB (C₅H₅)In (C₅H₅ = cyclopentadienyl) with equimolar quantities of HX and
 Et₄NX (X = Cl, Br, I) in organic media gave Et₄N[InX₂] (I) which were shown
 to contain bent monomeric anions by vibrational spectroscopy. (C₅H₅)In
 with [Ph₂MePCH₂]₂I₂ gave [Ph₂MePCH₂]₂[InI₃] (II). [InI₂]- and [InI₃]₂-
 salts were also prepared by electrochem. oxidation of In in I- solns.
 Metathetical reactions of I gave Et₄N[In(X₁)₂] (X₁ = NCS, NCO) and of II
 gave [Ph₂MePCH₂]₂[In(NCS)₃] which may contain bridging ligands.

L6 ANSWER 53 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1974:536247 CAPLUS
 DN 81:136247
 TI Metalation of the phosphino group in silylphosphines
 AU Fritz, G.; Schaefer, H.; Hoelderich, W.
 CS Inst. Anorg. Chem., Univ. Karlsruhe, Karlsruhe, Fed. Rep. Ger.
 SO Zeitschrift fuer Anorganische und Allgemeine Chemie (1974), 407(3), 266-86
 CODEN: ZAACAB; ISSN: 0044-2313
 DT Journal
 LA German
 AB Me_xH₃-xSiPH₂ (x = 0 and 2) reacted with Et₂PLi at molar ratio 1:2 in
 diglyme at low temperature to give Me_xH₃-xSiPLi₂ which reacted with MeCl to give
 Me_xH₃-x-SiPMe₂. Me_xH₃-xSiPH₂ (x = 0-3) reacted with MePHLi to give
 Me_xH₃-xSiPHLi which disproportionated in solns. of mono-, di-, or triglyme
 at room temperature or on addition of nonpolar solvents into (Me_xH₃-xSi)₂PLi and
 LiPH₂. (Me_xH₃-xSi)₂PLi etherates were obtained from these solns. after
 precipitation of LiPH₂ with benzene and evaporation of the solvent. The etherate of
 (Me₃Si)₂PLi reacted in benzene with MeCl to give (Me₃Si)₂PMe, and
 (MeSiH₂)PLi reacted with MeSiH₂Br to give (MeSiH₂)₃P. Me_xH₃-xSiPHLi (x =
 0 and 2) reacted with AlCl₃ in diglyme to give LiAl(PhSi-H₃-xMe)₄ which
 reacted with MeCl and H₃SiBr to give Me_xH₃-x-SiPHMe and (Me_xH₃-xSi)₂PH,
 resp. Compds. containing Al-P-(SiH₃)₂ and Al-PH₂ moieties formed also in
 this reaction reacted with halosilanes to give tri- and
 monosilylphosphines, resp., which were also formed by partial

disproportionation of the disilylphosphines. The NMR data of the compds. were reported.

L6 ANSWER 54 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1973:48712 CAPLUS
DN 78:48712
TI Indium selenocyanate complexes in nonaqueous solutions
AU Skopenko, V. V.; Mikitchenko, V. F.
CS Kiev. Gos. Univ. im. Shevchenko, Kiev, USSR
SO Ukrainskii Khimicheskii Zhurnal (Russian Edition) (1972), 38(9), 923-4
CODEN: UKZHAU; ISSN: 0041-6045
DT Journal
LA Russian
AB Calorimetric titration of InCl_3 with MeCN in Me_2CO and vice versa shows that neither solvent actively solvates InCl_3 . On the contrary, DMF and Me_2SO form complexes with ΔH of formation equal to -2.9 and -3.8 kcal/mole. By potentiometric titration, the formation in nonaq. solution of $\text{In}(\text{SeCN})_n(3-n)^+$ was demonstrated and the corresponding values of n determined in various solvents: Me_2CO , 1-6; MeCN, 6; DMF, 1-3; Me_2SO , 1-2.

L6 ANSWER 55 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1972:30284 CAPLUS
DN 76:30284
TI Formation of sodium tetraphosphinoaluminate, sodium tetra(methylphosphino)aluminate and preparation of silylphosphine and their PH-containing derivatives
AU Fritz, G.; Schaefer, H.
CS Inst. Anorg. Chem., Univ. Karlsruhe, Karlsruhe, Fed. Rep. Ger.
SO Zeitschrift fuer Anorganische und Allgemeine Chemie (1971), 385(3), 243-55
CODEN: ZAACAB; ISSN: 0044-2313
DT Journal
LA German
AB $\text{NaAl}(\text{PH}_2)_4$ and $\text{NaAl}(\text{HPMe})_4$ were prepared from NaPH_2 and MePH_2 , resp., and AlCl_3 in diglyme. $\text{NaAl}(\text{PH}_2)_4$ reacted with SiH_3Br to give H_3SiPH_2 ; $\text{MeSiH}_2\text{PH}_2$, $\text{Me}_2\text{SiHPH}_2$, and $\text{MeSiH}(\text{PH}_2)_2$ were similarly prepared. H_3SiPHMe , $\text{MeSiH}_2\text{PHMe}$, $\text{Me}_2\text{SiHPHMe}$, and Me_3SiPHMe were prepared from $\text{LiAl}(\text{HPMe})_4$. The compds. were characterized by ^1H and ^{31}P NMR spectra.

L6 ANSWER 56 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1971:483686 CAPLUS
DN 75:83686
TI Silicon-phosphorus hydrides. IV. Disilylphosphinoaluminate anion
AU Drake, J. E.; Anderson, J. W.
CS Dep. Chem., Univ. Windsor, Windsor, ON, Can.
SO Journal of the Chemical Society [Section] A: Inorganic, Physical, Theoretical (1971), (13), 2246-8
CODEN: JCSIAP; ISSN: 0022-4944
DT Journal
LA English
AB Trisilylphosphine reacts with LiAlH_4 to give a disilylphosphinoaluminate ion. The characterization of the latter resulted in the formation of methyl-, trimethylsilyl-, and disilanyl-(disilyl)phosphine.

L6 ANSWER 57 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1970:441330 CAPLUS
DN 73:41330
TI Coordination complexes of gallium(III) and indium(III) halides. V. Trialkyl and mixed alkyl-aryl phosphine complexes of indium(III) chloride, bromide, and iodide
AU Carty, Arthur J.; Hinsperger, T.; Boorman, Philip M.
CS Chem. Dep., Univ. Waterloo, Waterloo, ON, Can.
SO Canadian Journal of Chemistry (1970), 48(13), 1959-70
CODEN: CJCHAG; ISSN: 0008-4042
DT Journal
LA English
AB The new complexes InX_3L ($\text{X} = \text{Cl}, \text{Br}, \text{I}$; $\text{L} = \text{tricyclohexylphosphine}$), InX_3L_2 ($\text{X} = \text{Cl}, \text{Br}, \text{I}$; $\text{L} = \text{Me}_3\text{P}, \text{Et}_3\text{P}, \text{Me}_2\text{PhP}$), InX_3L_2 ($\text{X} = \text{Cl}, \text{Br}, \text{I}$; $\text{L} = \text{Ph}_2\text{EtP}$), InX_3L_3 ($\text{X} = \text{Cl}, \text{Br}$; $\text{L} = \text{Me}_2\text{PhP}$) have been prepared and characterized by far ir, Raman, and mol. weight studies. Structures of the

types trans trigonal bipyramidal InX_3L_2 and C_3v ψ -tetrahedral InX_3L can be readily characterized by virtue of their typical ir and Raman spectra. NMR chemical shifts and coupling consts. for adducts of Me_3P , Et_3P , Me_2PhP , and Ph_2EtP are discussed.

L6 ANSWER 58 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1969:423354 CAPLUS

DN 71:23354

TI Metal hydrides of phosphorus and arsenic

IN Finholt, Albert E.

SO U.S., 2 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3446605	A	19690527	US 1963-333176	19631224
PRAI	US 1963-333176	A	19631224		

AB Novel compds. having the formula $\text{MAl}(\text{EH}_2)_4$, where M is an alkali metal and E is P or As, are prepared by contacting PH_3 or AsH_3 with a solution of an alkali metal Al hydride in tetrahydrofuran or diglyme. Thus, to 270 cc. 1.5% LiAlH_4 solution in diglyme in an evacuated 1 l. flask was added PH_3 to give a pressure of 600 mm. The reaction was continued 152 hrs. Anal. of the hydrolyzed reaction product indicated the presence of the compound $\text{Li}1.00\text{Al}1.01(\text{PH}_2)_3.70$. Such compds. can be used to introduce a Group V element bound to H into organic and inorg. compds.

L6 ANSWER 59 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1969:115009 CAPLUS

DN 70:115009

TI Sodium aluminum hydride complexes with cyclic and acyclic ethers

IN Vit, Jaroslav; Casensky, Bohuslav; Machacek, Jiri

PA Ceskoslovenska Akademie Ved

SO Fr., 20 pp.

CODEN: FRXXAK

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 1515582		19680301	FR 1967-100163	19670324
	CZ 157495			CZ	
	CZ 157496			CZ	
	DE 1618223			DE	
	DE 1667409			DE	
	GB 1185707			GB	
	GB 1189511			GB	
	US 3507895		19700421	US	19670324
	US 3652622		19720328	US	19661110
	US 3728272		19730417	US	19700325
	US 3787450		19740122	US	19710422
	US 3829449		19740813	US 1971-136594	19710624
	US 3852262		19741203	US 1970-7308	19700108
PRAI	CS		19660326		

AB Compds. of the type $\text{NaAlH}_x\text{Z}_4-x$ (I) ($x = 1-3$; Z = furfuryloxy, tetrahydropyranyl methoxy, alkoxyalkoxy, or an analogous group containing S or N) were prepared in various ways from reactants giving the desired product. Thus, 0.0328 mole $\text{Al}(\text{OCH}_2\text{CH}_2\text{OMe})_3$ in 10 ml. C_6H_6 was added dropwise to 0.0164 mole Na_3AlH_6 with reflux. After 30 min. reflux, the mixture was filtered, and the filtrate evaporated to dryness to give 91.4% $\text{NaAlH}_2(\text{OCH}_2\text{CH}_2\text{OMe})_2$. Numerous other I were prepared similarly. The preparation of intermediates is also described as are a number of reduction and dehalogenation reactions. The advantage of these products is their greater solubility in inert solvents, such as benzene, which make them more suitable for reduction reactions and for use in catalyst systems.

L6 ANSWER 60 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1967:460433 CAPLUS

DN 67:60433
 TI Coordination compounds of indium. V. Indium thiocyanate and its addition compounds
 AU Patel, S. J.; Sowerby, D. Bryan; Tuck, Dennis G.
 CS Univ. Nottingham, Nottingham, UK
 SO Journal of the Chemical Society [Section] A: Inorganic, Physical, Theoretical (1967), (7), 1187-90
 CODEN: JCSIAP; ISSN: 0022-4944
 DT Journal
 LA English
 AB cf. CA 65: 8316c. Indium(III) thiocyanate is a thiocyanate-bridged polymer in the solid state. Reactions with unidentate donor ligands give rise to addition compds. In(NCS)3L3 (L = pyridine, γ -picoline, urea, Me2SO, AcNMe2, Ph3PO, and thiourea) which are compared with adducts of indium(III) halides. Possible structures of compds. involving bidentate ligands are suggested.

L6 ANSWER 61 OF 61 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1967:449971 CAPLUS
 DN 67:49971
 TI The chemistry of the lower valent iodides of gallium
 AU Brewer, Frederick M.; Reddy, G. S.; Goggin, Peter L.
 CS Inorg. Chem. Lab., Oxford, UK
 SO Journal of the Indian Chemical Society (1967), 44(3), 179-82
 CODEN: JICSAH; ISSN: 0019-4522
 DT Journal
 LA English
 AB The chemical behavior of GaI2 and GaS with a wide range of O, N, or S donors has been studied. GaS did not react with any ligand tested. GaI2 reacted with all ligands studied to form complexes of GaI2L2, stoichiometry where L is a monodentate ligand or 1 complexing site of a polydentate ligand. Molar conductivity measurements gave values of 21.3 ± 1.4 mhos for all compds. These data, along with mol. weight measurements show that complexes of GaI2 are of the type [GaL4] + [GaI4]-. Complexes of Ga2I4L4 were prepared where L = anisole, PhNH2, pyridine, Me2S, Pr2S, and Ph2S, and Ga2I4L2, L = benzoylacetone, dioxane, salicylaldehyde, acetylacetone, salicylaldoxime, morpholine, and dithizone, and Ga2I4L, where L = 1,2-ethylene morpholine. Attempts were made to prepare complexes with GaI. The products were always divalent [GaL4]+ [GaI4]-; Ga metal is produced as a result of the disproportionation.

=> s l3 and metallocene

128 L3
 15377 METALLOCENE
 L7 0 L3 AND METALLOCENE

=> s "II-VI nanocrystals"

2087001 "II"
 210175 "VI"
 17523 "NANOCRYSTALS"
 L8 21 "II-VI NANOCRYSTALS"
 ("II" (W) "VI" (W) "NANOCRYSTALS")

=> d 1-21 bib abs

L8 ANSWER 1 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:1232668 CAPLUS
 TI Formation of **II-VI nanocrystals** in polymeric matrix: Thermolytic synthesis and structural characterization
 AU Antolini, F.; Di Luccio, T.; Re, M.; Tapfer, L.
 CS ENEA - Ente per le Nuove Tecnologie, l'Energia ed Ambiente, UTS-MAT, Centro Ricerche Brindisi, Brindisi, I-72100, Italy
 SO Crystal Research and Technology (2005), 40(10-11), 948-954
 CODEN: CRTEDF; ISSN: 0232-1300
 PB Wiley-VCH Verlag GmbH & Co. KGaA
 DT Journal
 LA English
 AB In this work we report on the growth of CdS and ZnS semiconductor

nanocrystals embedded in a polymeric matrix (polystyrene) by synthesizing a metal thiolate precursor and its subsequent thermolysis at about 300°C after dispersion in the polymer. The crystallinity, shape and size of the metal sulfide nanocrystals were investigated by x-ray diffraction and transmission electron microscopy. The microstructural anal. demonstrates that our synthesis procedure allows us to control the nanocrystal growth in order to form nanoparticles with diameter as small as 0 = 2nm. In particular, XRD anal. reveals that only CdS and ZnS nanocrystals of zincblende structure are formed. TEM images show that the metal sulfide nanocrystals are monocrystals of spherical shape and the size dispersion is <20%. Our expts. indicate that the nanocrystal capping agent is performed by the sulfur atoms at the surface of the nanoparticle bound to alkyl chain of the thiolate.

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:699239 CAPLUS
DN 143:357424

TI Electronic structure of and quantum size effect in III-V and II-VI
semiconducting nanocrystals using a realistic tight binding approach
AU Viswanatha, Ranjani; Sapra, Sameer; Saha-Dasgupta, Tanusri; Sarma, D. D.
CS Solid State and Structural Chemistry Unit, Indian Institute of Science,
Bangalore, 560012, India

SO Physical Review B: Condensed Matter and Materials Physics (2005), 72(4),
045333/1-045333/10
CODEN: PRBMDO; ISSN: 1098-0121

PB American Physical Society

DT Journal

LA English

AB The authors analyze the electronic structure of Group III-V semiconductors obtained within full potential linearized APW (FP-LAPW) method and arrive at a realistic and minimal tight-binding model, parametrized to provide an accurate description of both valence and conduction bands. The cation sp³- anion sp³d⁵ basis along with the next nearest neighbor model for hopping interactions is sufficient to describe the electronic structure of these systems over a wide energy range, obviating the use of any fictitious s* orbital, employed previously. Similar analyses were also performed for the II-VI semiconductors, using the more accurate FP-LAPW method compared to previous approaches, to enhance reliability of the parameter values. Using these parameters, the authors calculate the electronic structure of III-V and II-VI **nanocrystals** in real space with sizes ranging up to .apprx.7 nm in diameter, establishing a quant. accurate description of the bandgap variation with sizes for the various nanocrystals by comparing with available exptl. results from the literature.

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:561341 CAPLUS
DN 143:397013

TI II-VI and III-xMnxVI semiconductor nanocrystals formed by the pressure
cycle method

AU Gonzalez, J.; Contreras, O.; Power, Ch.; Calderon, E.; Quintero, M.;
Martinez-Garcia, D.; Munoz-San Jose, V.; Chervin, J.; Hamel, G.; Snoeck,
E.; Broto, J.

CS Centro de Estudios de Semiconductores, Facultad de Ciencias, Universidad
de Los Andes, Merida, Venez.

SO High Pressure Research (2005), 25(2), 119-135
CODEN: HPRSEL; ISSN: 0895-7959

PB Taylor & Francis Ltd.

DT Journal

LA English

AB Nanocrystals of II-VI and III-xMnxVI were prepared by the pressure cycle method using the Paris-Edinburgh cell. The recovered samples are nanocrystals in the cubic phase Zn-blende (ZB) structure and were characterized using TEM, electron diffraction, X-ray diffraction and Raman scattering. Transmission electron micrographs show that these

nanocrystals are nearly spherical with diams. ranging from 20 to 50 nm depending on the sample under study. The Raman scattering measurements confirm the existence of **II-VI nanocrystals** in the cubic phase (ZB). The magnetic properties of Cd_{0.5}Mn_{0.5}Te nanoparticles vary with the particle size and were different from those observed for the Cd_{0.5}Mn_{0.5}Te bulk initial samples. The χ vs. T data show temperature hysteresis due to spin-glass form, which occurs at TG = 21 K, for both the bulk as well as for the recovered nanoparticle samples. The zero-field cooled and field-cooled χ vs. T curves for the nanoparticles showed a monotonous increase below TG. Below 21 K, the M vs. B curve for the recovered nanoparticle samples exhibited magnetic hysteresis, and this is attributed to a weak ferromagnetic contribution. This contribution is also observed in the $\chi(T)$ curves and is due to a large surface/volume ratio of the nanoparticles, which enhances the magnetic interaction.

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:446771 CAPLUS
DN 143:17107
TI Electronic structure of and quantum size effect in III-V and II-VI
semiconducting nanocrystals using a realistic tight binding approach
AU Viswanatha, Ranjani; Sapra, Sameer; Saha-Dasgupta, Tanusri; Sarma, D. D.
CS Solid State and Structural Chemistry Unit, Indian Institute of Science,
Bangalore, 560012, India
SO Los Alamos National Laboratory, Preprint Archive, Condensed Matter (2005)
1-28, arXiv:cond-mat/0505451, 18 May 2005
CODEN: LNCMFR
URL: <http://xxx.lanl.gov/pdf/cond-mat/0505451>
PB Los Alamos National Laboratory
DT Preprint
LA English
AB We analyze the electronic structure of group III-V semiconductors obtained within full potential linearized APW (FP-LAPW) method and arrive at a realistic and minimal tight binding model, parameterized to provide an accurate description of both valence and conduction bands. It is shown that cation sp³ - anion sp³d⁵ basis along with the next nearest neighbor model for hopping interactions is sufficient to describe the electronic structure of these systems over a wide energy range, obviating the use of any fictitious s* orbital, employed previously. Similar analyses were also performed for the II-VI semiconductors, using the more accurate FP-LAPW method compared to previous approaches, in order to enhance reliability of the parameter values. Using these parameters, we calculate the electronic structure of III-V and **II-VI nanocrystals** in real space with sizes ranging up to about 7 nm in diameter, establishing a quant. accurate description of the band-gap variation with sizes for the various nanocrystals by comparing with available exptl. results from the literature.

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:424128 CAPLUS
DN 141:130633
TI Synthesis and size control of luminescent II-VI semiconductor nanocrystals by a novel microemulsion-gas contacting technique
AU Karanikolos, Georgios N.; Alexandridis, Paschalis; Petrou, Athos; Mountziaris, T. J.
CS Departments of Chemical and Biological Engineering, University at Buffalo, The State University of New York, Buffalo, NY, 14260, USA
SO Materials Research Society Symposium Proceedings (2004), Volume Date 2003, 789(Quantum Dots, Nanoparticles and Nanowires), 389-394
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB A scalable, room-temperature technique for controlled synthesis of luminescent **II-VI nanocrystals** was developed by using the

dispersed phase of stable, well-characterized microemulsions as templates for nanoparticle synthesis. The microemulsions were formed by self-assembly of poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) (PEO-PPO-PEO) amphiphilic block copolymer and heptane in formamide. By adjusting the surfactant to dispersed phase ratio, stable microemulsions were obtained with droplet diameter of .apprx.40 nm. These microemulsions avoid problems or rapid droplet-droplet coalescence that hamper reverse micelles and lead to polydisperse particle populations. Luminescent ZnSe quantum dots were synthesized by reacting Et₂Zn (dissolved in the heptane dispersed phase) with H₂Se gas (diluted in H). The gas was bubbled through the microemulsion, dissolved in the formamide, and diffused to the nanodroplet interfaces to react with diethylzinc. A single nanocrystal is formed in each nanodroplet by coalescence of clusters (nuclei) and smaller crystals. The energy released during coalescence is sufficient to anneal the clusters into high-quality crystals. The process allows precise control of nanocrystal size by adjusting the initial concentration of diethylzinc in heptane. The as grown nanocrystals exhibit size-dependent luminescence, narrow and sym. emission, good monodispersity (confirmed by TEM anal.), and excellent photochem. stability. The technique is currently being extended to the synthesis of CdSe nanocrystals with promising preliminary results.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 6 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:297773 CAPLUS

DN 140:366285

TI Evolution of the electronic structure with size in II-VI semiconductor nanocrystals

AU Sapra, Sameer; Sarma, D. D.

CS Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, 560012, India

SO Physical Review B: Condensed Matter and Materials Physics (2004), 69(12), 125304/1-125304/7

CODEN: PRBMDO; ISSN: 0163-1829

PB American Physical Society

DT Journal

LA English

AB In order to provide a quant. accurate description of the band-gap variation with sizes in various II-VI semiconductor nanocrystals, we make use of the recently reported tight-binding parametrization of the corresponding bulk systems. Using the same tight-binding scheme and parameters, we calculate the electronic structure of **II-VI nanocrystals** in real space with sizes ranging between 5 and 80 Å in diameter. A comparison with available exptl. results from the literature shows an excellent agreement over the entire range of sizes.

RE.CNT 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:108262 CAPLUS

DN 141:62645

TI Direct ion beam synthesis of **II-VI nanocrystals**

AU Desnica, U. V.; Buljan, M.; Desnica-Frankovic, I. D.; Dubcek, P.; Bernstorff, S.; Ivanda, M.; Zorc, H.

CS Department of Physics, Rudger Boskovic Institute, Zagreb, 10000, Croatia

SO Nuclear Instruments & Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms (2004), 216, 407-413

CODEN: NIMBEU; ISSN: 0168-583X

PB Elsevier Science B.V.

DT Journal

LA English

AB We have studied the direct synthesis of nanoparticles formed by dual implantation of large and equal doses of Cd + S, Zn + Te, Cd + Te or Pb + Te ions into SiO₂ substrate. Grazing incidence small angle x-ray scattering (GISAXS), transmittance measurements and Raman spectroscopy were used to investigate implanted composites. The 2D GISAXS patterns suggest the synthesis of nanoparticles already during ion implantation,

performed either at 300 or at 77 K, while annealing at higher T causes an increase of the fraction and the average size of synthesized nanoparticles. After high-T annealing both optical methods detected nanocrystals of compound semiconductors CdS, ZnTe or CdTe through the appearance of the resp. first optical gaps, E_g , in transmittance measurements and characteristic LO peaks in Raman spectra. At high ion doses a fraction of implanted atoms synthesize already during implantation into amorphous aggregates of compound semiconductor, which transform into crystalline nanoparticles after annealing.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 8 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:8450 CAPLUS

DN 140:295286

TI Evolution of the electronic structure with size in II-VI semiconductor nanocrystals

AU Sapra, Sameer; Sarma, D. D.

CS Solid State and Structural Chem. Unit, Indian Inst. of Science, Bangalore, 560012, India

SO Los Alamos National Laboratory, Preprint Archive, Condensed Matter (2003)

1-21, arXiv:cond-mat/0312704, 30 Dec 2003

CODEN: LNCMFR

URL: <http://xxx.lanl.gov/pdf/cond-mat/0312704>

PB Los Alamos National Laboratory

DT Preprint

LA English

AB In order to provide a quant. accurate description of the band gap variation with sizes in various II-VI semiconductor nanocrystals, we make use of the recently reported tight-binding parametrization of the corresponding bulk systems. Using the same tight-binding scheme and parameters, we calculate the electronic structure of **II-VI nanocrystals** in real space with sizes ranging between 5 and 80 Å in diameter. A comparison with available exptl. results from the literature shows an excellent agreement over the entire range of sizes.

RE.CNT 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 9 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:588980 CAPLUS

DN 139:268195

TI ZnS Nanomaterial Characterization by MALDI-TOF Mass Spectrometry

AU Khitrov, Gregory A.; Strouse, Geoffrey F.

CS Department of Chemistry and Biochemistry, University of California, Santa Barbara, CA, 93106, USA

SO Journal of the American Chemical Society (2003), 125(34), 10465-10469

CODEN: JACSAT; ISSN: 0002-7863

PB American Chemical Society

DT Journal

LA English

AB The authors present a methodol. for mass and size dispersity anal. by MALDI-TOF mass spectrometry of lyothermally grown 2.5-3.7 nm ZnS nanocrystals having a Zn blende crystal structure. These results correlate with information obtained by TEM and absorption spectroscopy. The use of MS methods to probe size and size dispersity provides a convenient method to rapidly analyze II-VI materials at the nanoscale. The authors believe these results represent the 1st mass spectrometric anal. of size and size dispersities on **II-VI nanocrystals**.

RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 10 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:537299 CAPLUS

DN 139:343942

TI Advanced apparatus for combinatorial synthesis of buried **II-VI nanocrystals** by ion implantation

AU Grosshans, I.; Karl, H.; Stritzker, B.

CS Institut für Physik, Universität Augsburg, Augsburg, D-86135, Germany

SO Materials Science & Engineering, B: Solid-State Materials for Advanced
Technology (2003), B101(1-3), 212-215
CODEN: MSBTEK; ISSN: 0921-5107
PB Elsevier Science B.V.
DT Journal
LA English
AB The understanding, discovery and optimization of new complex functional
materials requires combinatorial synthesis techniques and suitable fast
screening and anal. methods. In this contribution the synthesis of buried
II-VI compound semiconductor nanocrystals by combinatorial ion-implantation
in SiO₂ on silicon will be presented. To this end the authors constructed
a computer controlled implanter target station, in which a 4-in. wafer can
be implanted with a lateral pattern of distinct dose or energy
combinations. The chemical reaction of the implanted components is initiated
either during the implantation process or in a 2nd step, with the
advantage that also a reactive atmospheric can be applied, during annealing. The
resulting optical photoluminescence properties of the individual fields of
the pattern can then be screened in rapid succession in an optical
cryostat into which the whole wafer is mounted and cooled down. In this
way complex interdependences of the phys. parameters will be studied on
one wafer and the tech. relevant properties optimized.
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 11 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:181762 CAPLUS
TI First-principles simulations of semiconductor nanostructures
AU Galli, Giulia
CS Lawrence Livermore National Laboratory, Livermore, CA, 94551, USA
SO Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United
States, March 23-27, 2003 (2003), COMP-075 Publisher: American Chemical
Society, Washington, D. C.
CODEN: 69DSA4
DT Conference; Meeting Abstract
LA English
AB While robust exptl. results have been established for II-
VI nanocrystals in the last decade, group IV elemental
nanostructures are much less well characterized. The interplay between
quantum confinement effects and surface properties has not been fully
understood in these systems, and the effects of preparation conditions on the
phys. properties of Group IV nanoparticles remain an open issue. In this
talk we present results of first principles simulations -using both D.
Functional Theory and Quantum Monte Carlo techniques- aimed at
understanding the phys. and chemical properties of C, Si and Ge nanoparticles
with diams. up to 2-3 nm. In particular, we will present investigations
of optical gaps and surface properties, and simulations of the effect of
different preparation conditions on the structure of Si nanoparticles. (*)
Work done in collaboration with E. Draeger, J. Grossman, A. Puzder, J-Y.
Raty and A. Williamson.

L8 ANSWER 12 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:181742 CAPLUS
TI Development of a QM/MM model for peptide-encapsulated CdS nanocrystals
AU Madura, Jeffry D.; Worthington, James; Evanseck, Jeffrey D.
CS Center of Computational Sciences, Duquesne University, Pittsburgh, PA,
15226, USA
SO Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United
States, March 23-27, 2003 (2003), COMP-055 Publisher: American Chemical
Society, Washington, D. C.
CODEN: 69DSA4
DT Conference; Meeting Abstract
LA English
AB During the past several years now there has been considerable interest in
the electronic properties of group II-VI
nanocrystals. In previous calcs. the focus has been on bare CdS
nanocrystals and organically capped CdS nanocrystals. With the synthesis
of peptide encapsulated CdS nanocrytals established we have begun a
systematic QM and QM/MM study on the structure and electronic properties
of peptide encapsulated CdS nanocrystals. This type of CdS nanocrystal is

of interested in light of functionalizing the peptide coat and the effect the peptide coat has on the electronic properties of the nanocrystal. In this talk we will present our initial results on this system.

L8 ANSWER 13 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:615148 CAPLUS

TI Controlled growth in II-VI nanocrystals:

Redox promoters and restrainers

AU Larson, J. Peter; Schrier, Marc; Treadway, Joseph A.; Truong, Anh; Zehnder, Don

CS Quantum Dot Corporation, Hayward, CA, 94545, USA

SO Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), COLL-159 Publisher: American Chemical Society, Washington, D. C.

CODEN: 69CZPZ

DT Conference; Meeting Abstract

LA English

AB The preparation of cadmium selenide quantum dots has been developed into a flexible process through the use of ionic cadmium precursors. This flexibility is expressed by particle nucleation and growth control with impacts on "stall" sizes, size dispersity, particle yields, morphol., and emissive quantum yields. We will describe the impact of reaction temperature, cadmium precursor, ligand, concentration, and redox-active promoters and restrainers in this robust system used to successfully prepare narrowly distributed II-VI semiconductor nanocrystals throughout the known particle size range. A kinetic growth model based on these observations will be presented.

L8 ANSWER 14 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:167514 CAPLUS

DN 137:38873

TI Synthesis and surface modification of amino-stabilized CdSe, CdTe and InP nanocrystals

AU Talapin, Dmitri V.; Rogach, Andrey L.; Mekis, Ivo; Haubold, Stephan; Kornowski, Andreas; Haase, Markus; Weller, Horst

CS University of Hamburg, Institute of Physical Chemistry, Hamburg, D-20146, Germany

SO Colloids and Surfaces, A: Physicochemical and Engineering Aspects (2002), 202(2-3), 145-154

CODEN: CPEAEH; ISSN: 0927-7757

PB Elsevier Science B.V.

DT Journal

LA English

AB CdSe, CdTe and InP nanocrystals were prepared by an organometallic synthesis using mixts. of highly boiling primary amines and trioctylphosphine (TOP) as the coordinating solvent, and were characterized by powder XRD, SAXS, HRTEM, absorption and luminescence spectroscopy. The use of amines allowed obtaining small crystalline nanoparticles for all materials studied. In all cases, as-prepared colloids show rather narrow particle size distributions which can be further improved by standard size selective precipitation. Amino-capped II-VI nanocrystals show strong size-dependent band edge luminescence (PL). CdSe nanocrystals with the mean particle size at 1.2-3.0 nm exhibit emission from blue to green with room temperature quantum yields of 15-20%. CdTe nanocrystals (2.5-5.0 nm size range) show a PL tunable from green to red with quantum yields up to 65% at room temperature. InP nanocrystals (1.5-4.0 nm size range) possess a weak emission (<1% quantum efficiency (QE)). A simple method is proposed to transfer nanocrystals from organic solvents to H2O which allows to retain sufficiently strong luminescence of CdTe nanoparticles. CdSe nanocrystals synthesized in trioctylphosphine-trioctylphosphine oxide mixture (TOP-TOPO) show an increased QE of .apprx.70% after subsequent treatment with primary amines.

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 15 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1998:815548 CAPLUS

DN 130:159948

TI Synthesis of CdSe quantum dot-ZnS matrix thin films via electrospray

organometallic chemical vapor deposition
AU Heine, J. R.; Rodriguez-Viejo, J.; Bawendi, M. G.; Jensen, K. F.
CS Department of Materials Science and Engineering, Massachusetts Institute
of Technology, Cambridge, MA, 02139, USA
SO Journal of Crystal Growth (1998), 195(1-4), 564-568
CODEN: JCRGAE; ISSN: 0022-0248
PB Elsevier Science B.V.
DT Journal
LA English
AB A modified organometallic CVD technique is used to incorporate luminescing
II-VI **nanocrystals** (NCs) into ZnS thin films.
The NCs are synthesized in organic solution and consist of a CdSe core and ZnS
shell. The ZnS matrix is deposited by OMCVD from Et₂Zn and H₂S while the
NCs are delivered to the film surface via electrospray. Varying the size
of the CdSe NC core enables tunable emission from the blue to the red.
The ZnS shell provides electronic and chemical passivation of the CdSe core
improving its luminescence and thermal stability. The thin films exhibit
room temperature luminescence (PL) and cathodoluminescence (CL) dominated by
emission from the NCs. PL quantum efficiencies >10% were achieved. The
dependence of thin film luminescence and microstructure on deposition
temperature is studied using optical luminescence and x-ray diffraction.
Particular emphasis is placed on the relation between the host ZnS
structure and the optical properties of the NC-ZnS composite thin film.
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 16 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:203176 CAPLUS
DN 128:276521
TI Formation of II-VI **nanocrystals** in a novel
phosphate glass
AU Lipovskii, A. A.; Kolobkova, E. V.; Petrikov, V. D.
CS St. Petersburg State Technical Univ., St. Petersburg, 195251, Russia
SO Journal of Crystal Growth (1998), 184/185, 365-369
CODEN: JCRGAE; ISSN: 0022-0248
PB Elsevier Science B.V.
DT Journal
LA English
AB A novel glass system was designed for doping with increased concentration of
II-VI **nanocrystals**. CdS, CdSe, CdS_xSe_{1-x},
CdTe and ZnSe crystallites were successfully grown within the glass
matrix. High concns. and narrow size distribution of the nanocrystals
provide observation of complicated structure of optical transitions.
Positions of optical absorption peaks observed for pure semiconductors are
compared with results of numerical calcns. performed in accordance with
existing models of energy levels in the quantum dots. The necessity to
take account of the spin-orbit splitting of valence subbands for
identification of the observed optical transitions is shown.
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 17 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:136799 CAPLUS
DN 126:298978
TI Synthesis of CdSe/ZnS quantum dot composites for electroluminescent
devices
AU Rodriguez-Viejo, J.; Babbousi, B. O.; Bawendi, M. G.; Jensen, K. F.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Materials Research Society Symposium Proceedings (1997), 424(Flat Panel
Display Materials II), 477-482
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB Quantum dot composite films, consisting of II-VI
nanocrystals imbedded in a ZnS matrix, are candidate phosphor
materials for electroluminescent flat panel displays. The optical
properties of such composites can be tailored across the visible spectral
region by selecting the composition and size of the nanocrystals. The authors

present combined solution chemical and electrospray organometallic CVD (ES-OMCVD) methods for realizing such composites. Size selected, CdSe quantum dots with an overlayer of ZnS were synthesized in solution. This surface derivatization produces a large enhancement of the photoluminescence efficiency. The quantum dot composites are subsequently formed by introducing the quantum dot solution by electrospray into an OMCVD ZnS thin film process. Photoluminescence and cathodoluminescence properties of the quantum dot composites are reported.

L8 ANSWER 18 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1996:667245 CAPLUS

DN 126:52170

TI Spectroscopy of **II-VI nanocrystals** at high pressure and high temperature

AU Schroeder, J.; Persans, P. D.

CS Department Physics, Applied Physics and Astronomy, Rensselaer Polytechnic Institute, Troy, NY, 12180-3590, USA

SO Journal of Luminescence (1996), 70(1-6), 69-84

CODEN: JLUMA8; ISSN: 0022-2313

PB Elsevier

DT Journal; General Review

LA English

AB A review with 48 refs. on exptl. measurements of CdS, CdSe, and CdS_xSe_{1-x} nanocrystals which address the properties and phase stability of both powder and embedded nanoparticles under extreme conditions. The authors address the high pressure phase transition of wurtzite or zincblende phase to the rock salt structure; the high temperature solid to liquid phase transition; and the homogeneous nucleation of nanoparticles in glass from dissolved reactants. The authors also review the use of high pressure optical measurements to study electronic states.

L8 ANSWER 19 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:647175 CAPLUS

DN 123:267285

TI Characterization of zinc sulfide nanoclusters via atomic force and scanning tunneling microscopy

AU Coury, J. E.; Pitts, E. C.; Shorrosh, R.; Felton, R. H.; Bottomley, L. A.

CS Sch. Chem. Biochem., Georgia Inst. Technol., Atlanta, GA, 30332-0400, USA

SO Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (1995), 13(3), 1167-71

CODEN: JVTBD9; ISSN: 0734-211X

PB American Institute of Physics

DT Journal

LA English

AB **II-VI nanocrystals** or nanoclusters recently were the subject of intensive study because of their potential use in high-speed electronics applications. The authors have prepared and characterized a series of ZnS nanoclusters which vary in size and type of capping groups. Capping of the nanoclusters with alkanethiols possessing charged end groups enabled their electrostatic immobilization to oppositely charged surfaces (e.g., chemical modified Au and mica). Electrostatic immobilization provided reproducible scanned probe imaging of the clusters on these surfaces. Size distributions were obtained by STM and AFM; mean particle diams. correlated well with values obtained by x-ray diffraction. Compressibility studies were performed and showed that the nanoclusters were relatively incompressible under typical imaging forces.

L8 ANSWER 20 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1991:592707 CAPLUS

DN 115:192707

TI Optical properties of **II-VI semiconductor nanocrystals**

AU Lippens, P. E.; Lannoo, M.

CS Lab. Etude Surf. Interfaces, Inst. Super. Electron. Nord, Lille, 59046, Fr.

SO Semiconductor Science and Technology (1991), 6(9A), A157-A160

CODEN: SSTEET; ISSN: 0268-1242

DT Journal

LA English

AB An empirical tight-binding framework and the recursion method were used to calculate some electronic properties of II-VI semiconductor nanocrystals. First, the ground-state energy of the exciton was calculated. Results are given for 6 different II-VI compds. A simple evaluation of the optical absorption peak of the excitons is favorably compared with exptl. data. Finally, a calcn. of the d. of states is presented.

L8 ANSWER 21 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1991:592585 CAPLUS

DN 115:192585

TI Optical and electro-optical properties of II-VI quantum dots

AU Henneberger, F.; Puls, J.; Spiegelberg, C.; Schuelzgen, A.; Rossman, H.; Jungnickel, V.; Ekimov, A. I.

CS Fachbereich Phys., Humboldt-Univ., Berlin, O-1040, Germany

SO Semiconductor Science and Technology (1991), 6(9A), A41-A50
CODEN: SSTEET; ISSN: 0268-1242

DT Journal; General Review

LA English

AB A review with 44 refs. is given on recent studies on absorption, luminescence, nonlinear optical effects and electroabsorption on wide-gap **II-VI nanocrystals** embedded in a glass matrix.

=> s "III-V nanocrystals"

1019174 "III"

1072716 "V"

17523 "NANOCRYSTALS"

L9 3 "III-V NANOCRYSTALS"

("III" (W) "V" (W) "NANOCRYSTALS")

=> D 1-3 BIB ABS

L9 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:822155 CAPLUS

DN 140:49399

TI Production of **III-V nanocrystals** by
picosecond pulsed laser ablation

AU Wu, M. H.; Mu, R.; Ueda, A.; Henderson, D. O.

CS Department of Physics, Fisk University, Nashville, TN, 37208, USA

SO Materials Research Society Symposium Proceedings (2003), 780(Advanced
Optical Processing of Materials), 93-98

CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

AB InAs nanoparticles were produced by picosecond pulsed laser ablation of bulk targets in the presence of an inert backing gas. Atomic force microscopy measurements show particles ranging in size from 1 to 10 nm. Stoichiometry of the targets, determined by Rutherford backscattering measurements, are typically preserved within 10%. Optical absorption and Raman scattering data help confirm the crystalline, quantum confined nature of the nanoparticles.

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:163392 CAPLUS

TI Faceting of semiconductor nanocrystals studied by HRTEM.

AU Kadavanich, Andreas V.; Alivisatos, A. P.

CS Department Chemistry, University California, Berkeley, CA, 94720-1460, USA

SO Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17

(1997), PHYS-314 Publisher: American Chemical Society, Washington, D. C.

CODEN: 64AOAA

DT Conference; Meeting Abstract

LA English

AB High Resolution Transmission Electron Microscopy (HRTEM) was used to determine the morphol. of various colloidal semiconductor nanocrystal systems. Nanocrystals prepared under quasi-equilibrium conditions have well-defined, faceted shapes. The observed shapes can be explained by the Wulff theorem

and consideration of the effects of the passivating ligands on the surface energies. Facetting is most pronounced in II-VI systems, but recently prepared III-V nanocrystals are shown to be faceted as well.

L9 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:925866 CAPLUS

TI Macroscopic quantities of nanoscopic materials: Synthesis, characterization and immobilization of nanocrystalline binary and ternary III-V (13-15) compound semiconductors.

AU Wells, Richard L.; Kher, Shreyas S.; Aubuchon, Steven R.; Lube, Michael S.; Hagan, Carolynne R. S.; Halaoui, Lara I.; Coury, Louis A. Jr.

CS Department Chemistry, Duke University, Durham, NC, 27708-0346, USA

SO Book of Abstracts, 210th ACS National Meeting, Chicago, IL, August 20-24 (1995), Issue Pt. 2, PMSE-110 Publisher: American Chemical Society, Washington, D. C.
CODEN: 61XGAC

DT Conference; Meeting Abstract

LA English

AB This paper details two basic routes for the synthesis of III-V nanocrystals: (1) dehalosilylation reactions between Group III halides and $E(\text{SiMe}_3)_3$ ($E = \text{P}, \text{As}$) in hydrocarbon solvents to afford nanocryst. III-V semiconductors or their precursors; (2) reactions of MX_3 ($\text{M} = \text{Ga}, \text{X} = \text{Cl}, \text{I}; \text{M} = \text{In}, \text{X} = \text{Cl}, \text{I}$) in glyme solvents with in situ synthesized $(\text{Na/K})_3\text{E}$ ($\text{E} = \text{P}, \text{As}, \text{Sb}$) in aromatic solvents yielding nanocryst. GaP, GaAs, GaSb, InP, InAs and InSb after simply refluxing the reaction mixture. These materials have been extensively characterized in terms of particle size using a variety of techniques including HRTEM, STM, BET, SEM, UV/vis and XRD.